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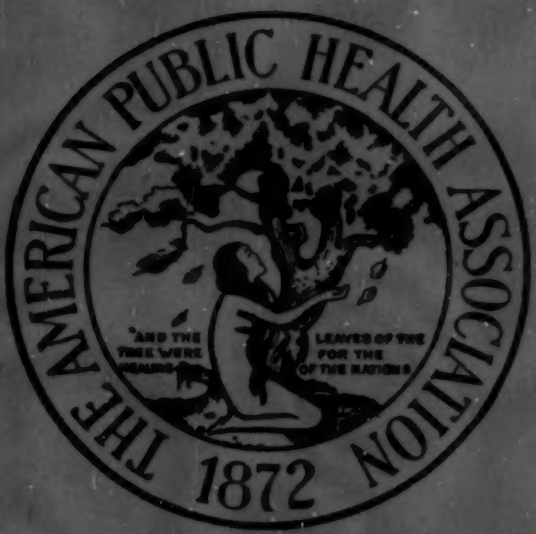

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[1] Fraser, P. A.
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[3] First, M. W., and Silverman, Leslie.
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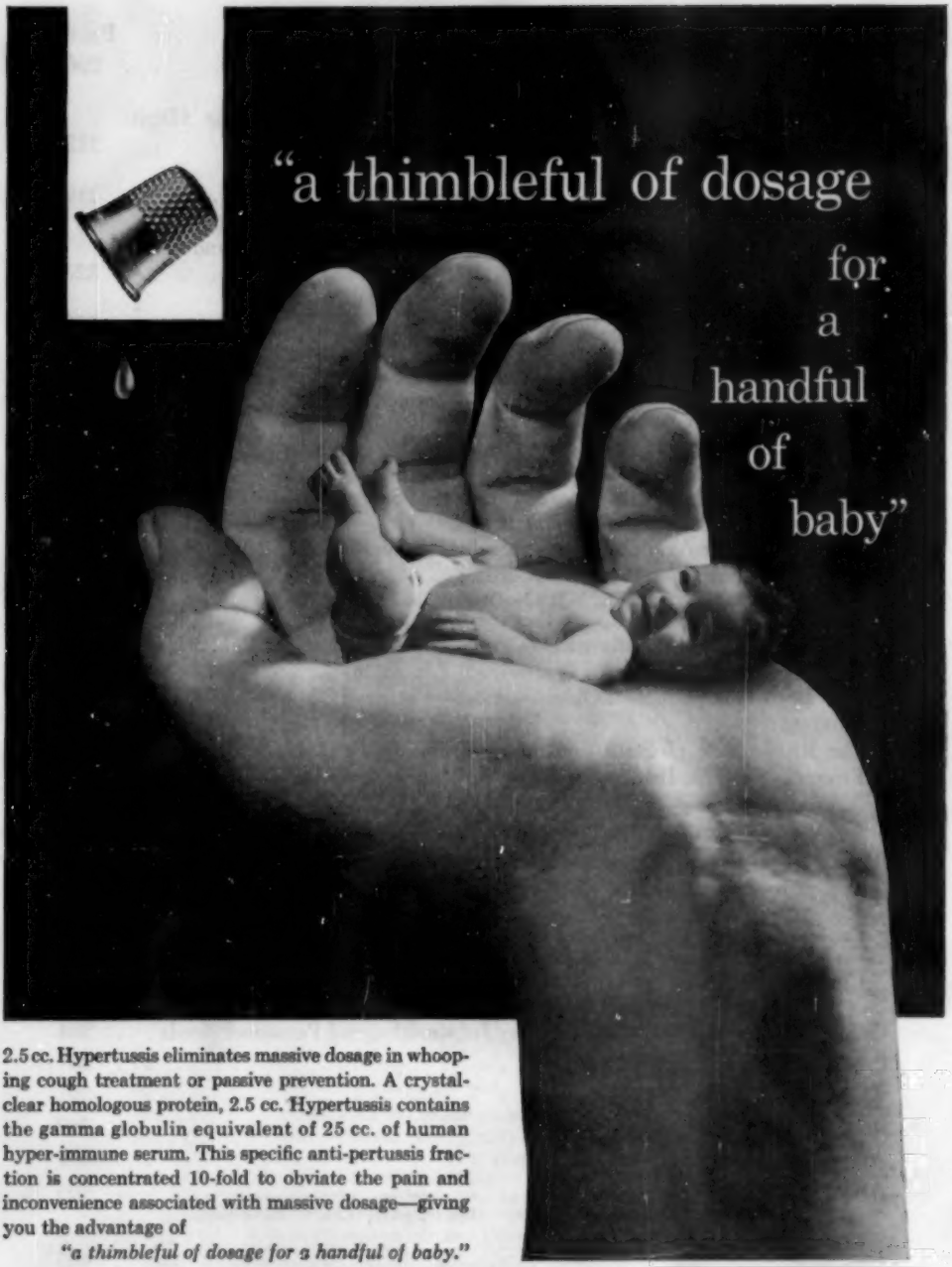

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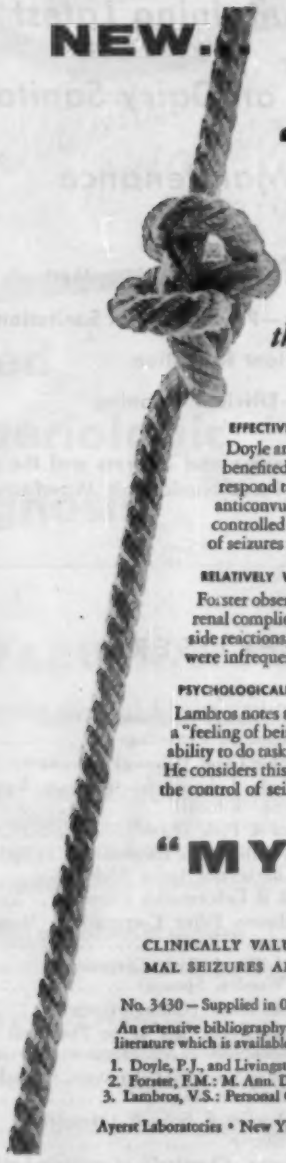

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1. Doyle, P.J., and Livingston, S.: J. Pediat. 43:413 (Oct.) 1953.
2. Forster, F.M.: M. Ann. District of Columbia 23:137 (Mar.) 1954.
3. Lambros, V.S.: Personal Communication.

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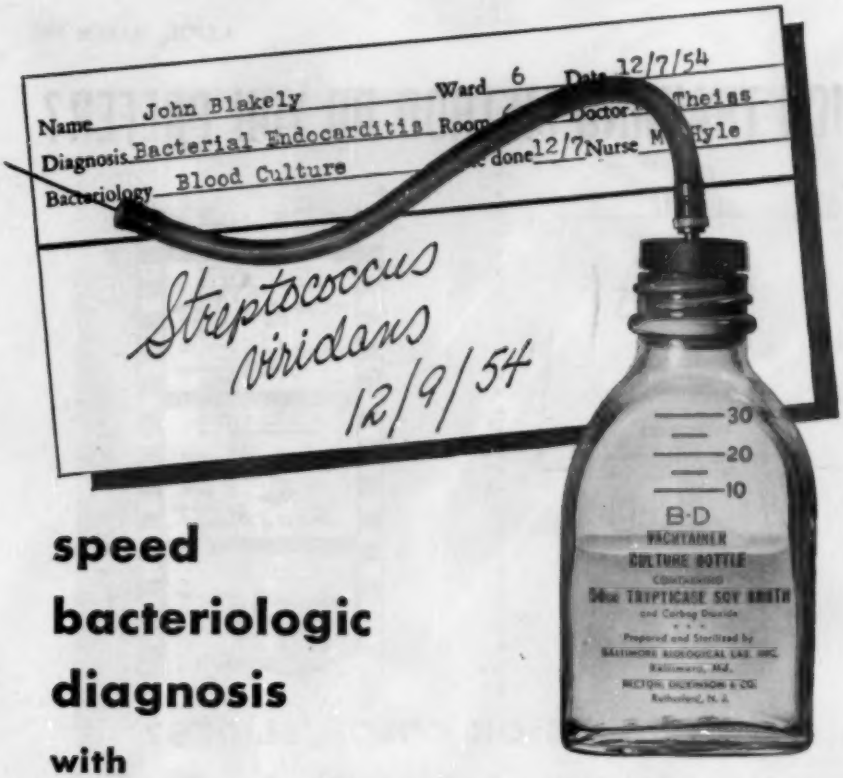

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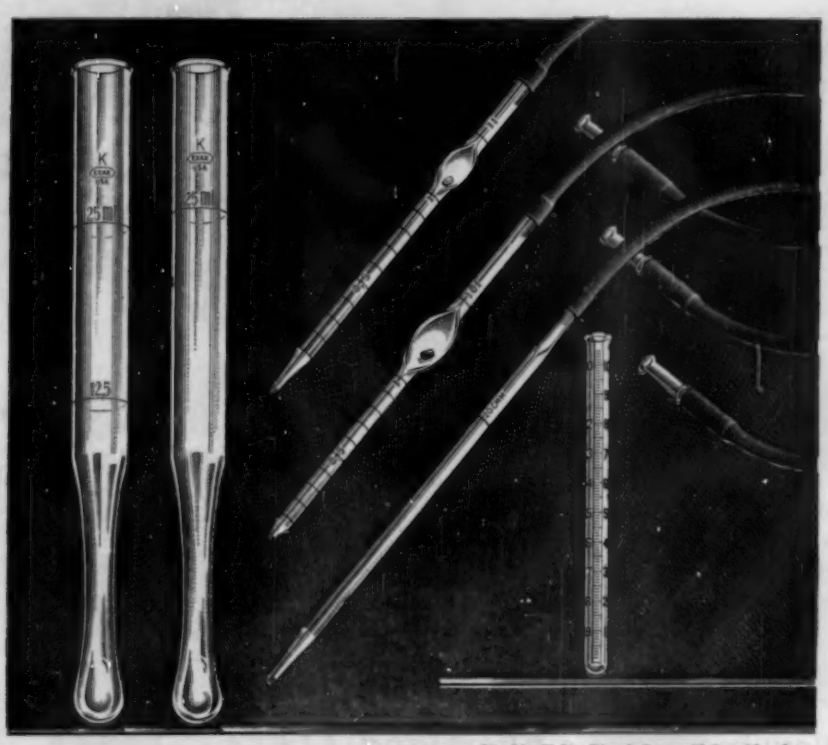

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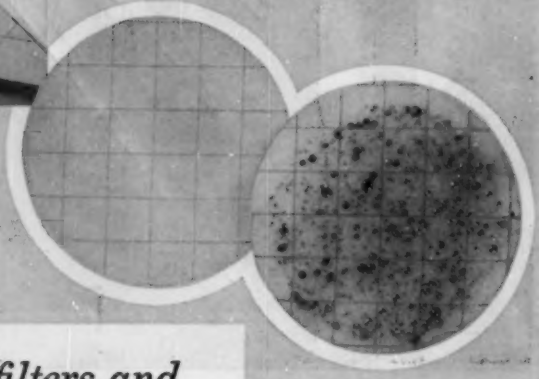

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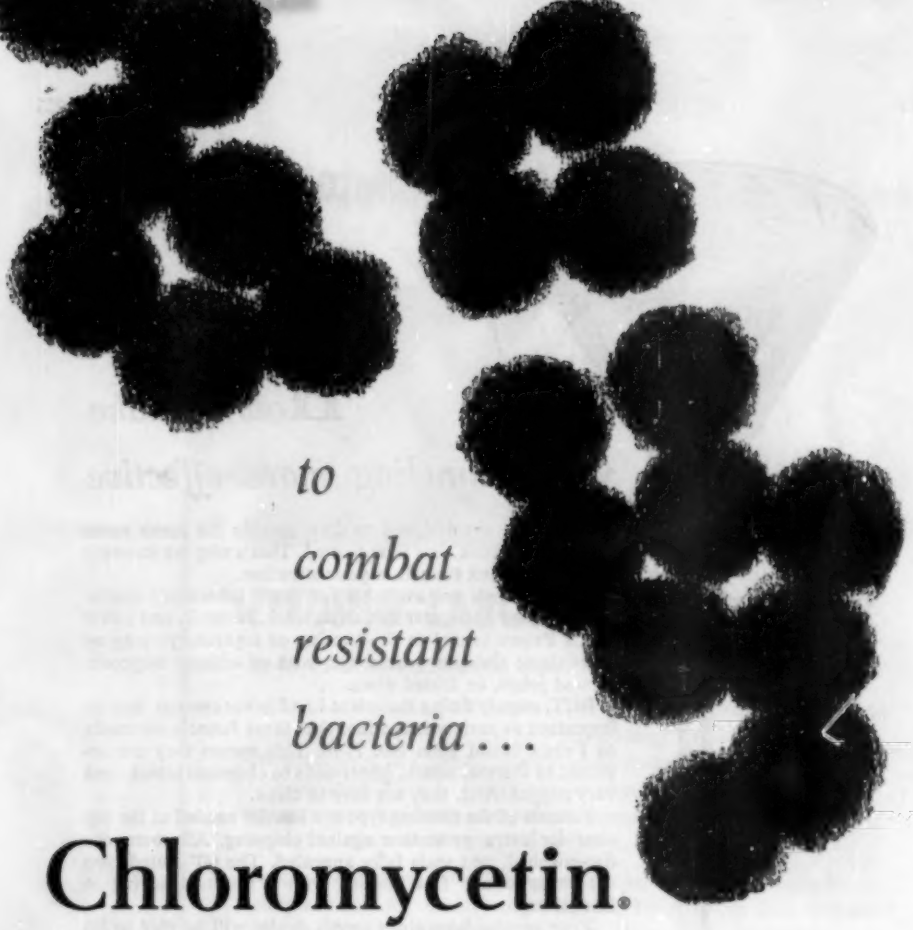

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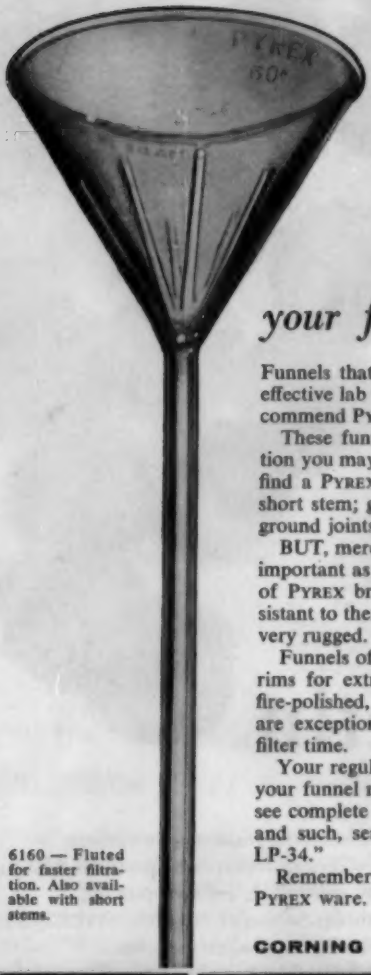

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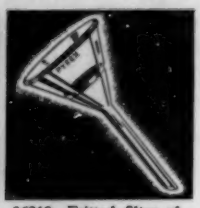

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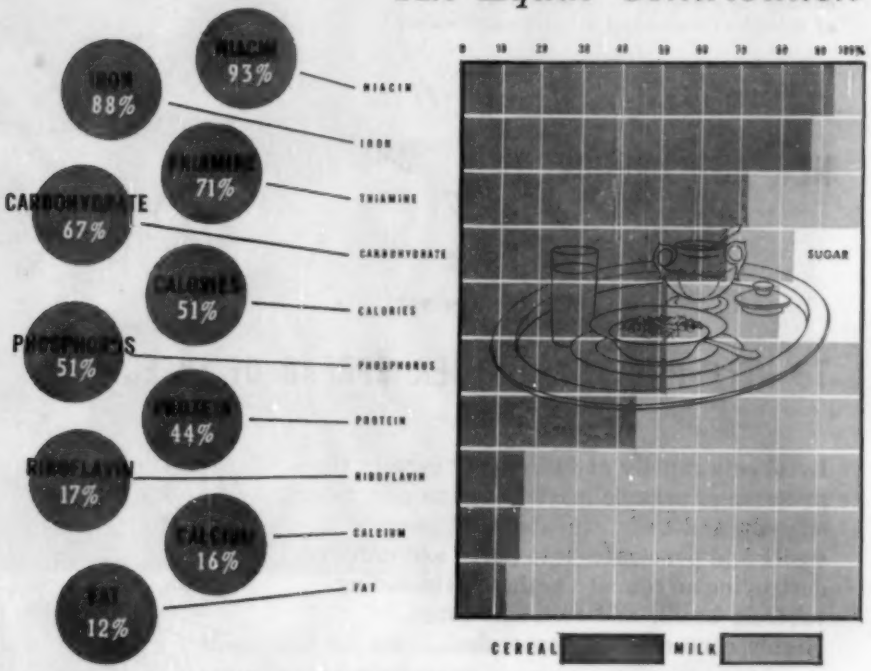

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1 *Klarmann, E. G.; Wright, E. S. and Shternov, V. A.: Prolongation of the antibacterial potential of disinfected surfaces, Applied Microbiology 1:19 (Jan.) 1953.*

2 *Smith, C. R.: Disinfectants for tuberculosis hygiene, Soap and Sanitary Chemicals 27:130 (Sept.) 1951; 27:145 (Oct.) 1951.*

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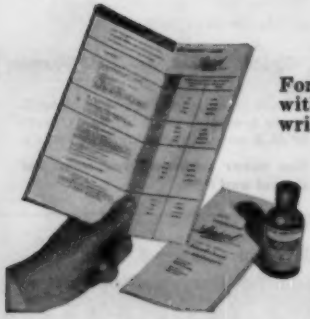

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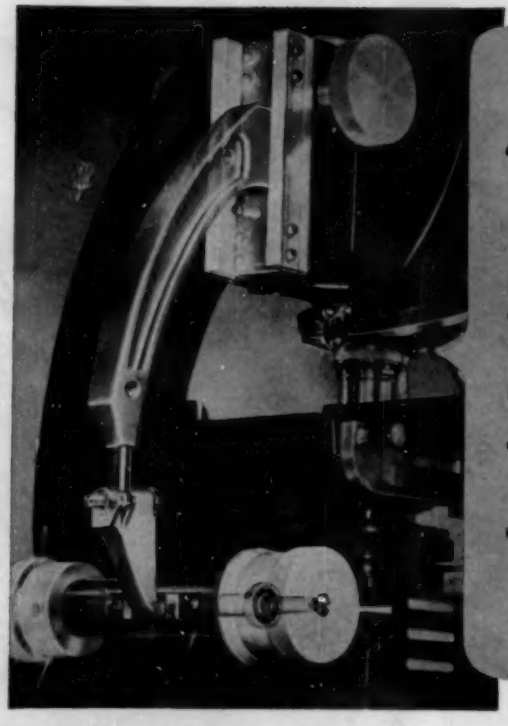

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1. Smith, C. A., and others: Am. J. Syph., Gonor. & Ven. Dis. 38:136 (March) 1954. 2. Council on Pharmacy and Chemistry: New and Nonofficial Remedies. J. B. Lippincott Co., Philadelphia, 1954, p. 148.

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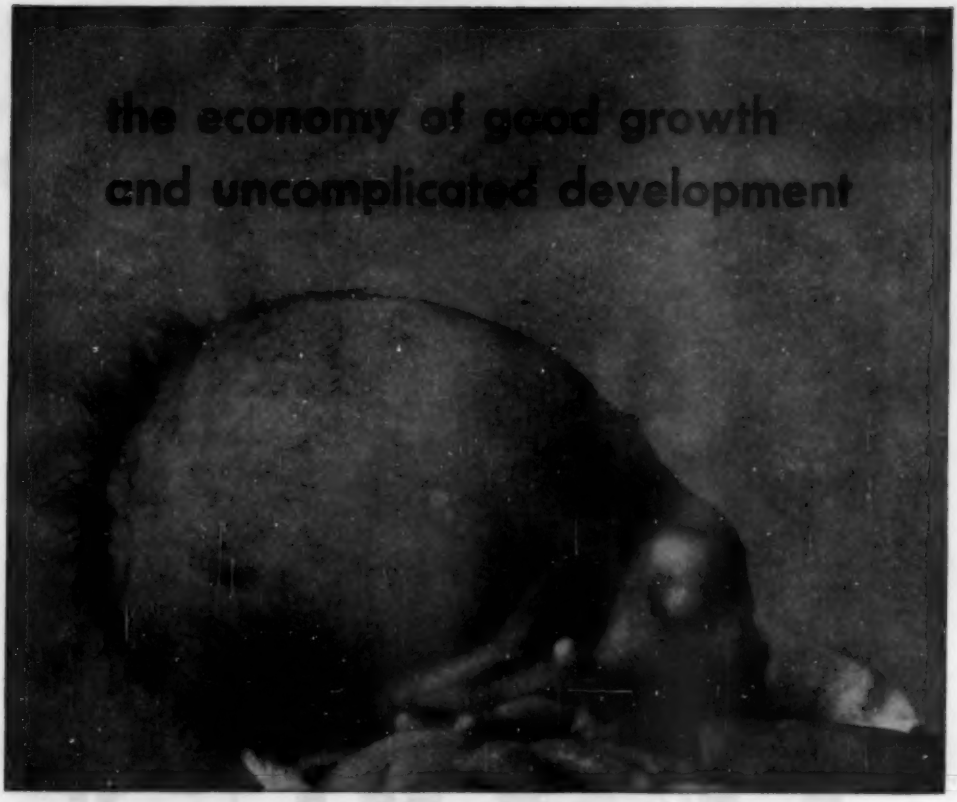

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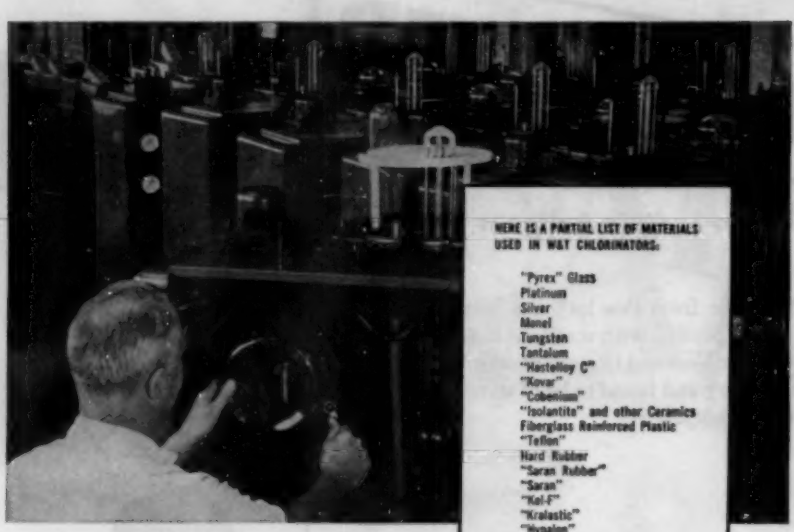

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Official Monthly Publication of the American Public Health Association, Inc.
Volume 45 March, 1955 Number 3

Symposium on Community Self-Surveys in Health

ODIN W. ANDERSON, Ph.D., F.A.P.H.A.

Many there are who lend verbal support to the concept that "the people" must somehow be involved, if present-day public health programs are to succeed. But involving the people presents practical difficulties. Some of them become evident in these papers that were a part of a broader program. The papers themselves are regrettably, but necessarily, shortened.

The health field is gradually looking to social scientists for assistance in the promotion, organization, and administration of health programs. Someone has observed that during its sanitation and communicable disease stages public health was rooted in the laboratory sciences. Now public health is looking also to the social sciences for assistance, since vital public health is concerned with people and communities. There is always a lag between what we know about possible health improvements and their application and it is hoped that social science can assist in shortening that lag.

This symposium will be concerned chiefly with the social and community organizational aspects in which health programs are planned, promoted, and succeed or fail as the case may be. Specifically, can the community self-survey technic, which will be illustrated and explained, serve as an effective instrument for public health action?

Dr. Anderson is research director, Health Information Foundation, New York, N. Y.

The introductory remarks by Dr. Anderson and the following three papers in this symposium were presented before a Joint Session of the Dental Health, Food and Nutrition, Health Officers, Public Health Education, and Public Health Nursing Sections of the American Public Health Association at the Eighty-second Annual Meeting in Buffalo, N. Y., October 14, 1954.

The three community surveys were financed by the Health Information Foundation, New York, N. Y.

I—Social Aspects of Health Action: Salem, Mass.

FLOYD HUNTER, Ph.D.

The Salem community study, like others in health action sponsored by the Health Information Foundation, was a "study of a self-study." The research staff involved in the observational study wished to watch a community of normal proportions with no more than the normal problems go about studying a broad front of needs and move toward meeting some of them. The disciplinary vantage points from which this watching went on were those of sociology, medicine, public health education, anthropology, and social work, i.e., there were staff members on a research team who represented these disciplines.

Salem, a community of 40,000 people, was selected from a rather long list of medium-sized northeastern towns for several reasons. Salem was "moving up on" a community-wide health survey at the time they were polled regarding their interest in being studied. Salem leaders were aggressive in inviting a study. Preliminary observations indicated that the community had problems, but it was not a community in crisis. It appeared that Salem was well enough organized, from a community organizational point of view, that the staff would not have to spend time in prodding or moving the people and thus spoil the notion of observing a self-study. The location of the community, by section of the country, gave the foundation some balance in communities selected for study.

While the research staff from the University of North Carolina wished to be as objective, unbiased, and science-dedicated as possible, the choice of study methods and the areas of observation reflected the particular science interests of the staff, and since the sociologists in the group outnumbered the other represented disciplines by three to one (there were three sociologists and one each of the other disciplines), the final study reflects a sociological slant. Not that this was bad! As a matter of fact, the study was planned that way, for we wished to emphasize the social aspects of movement, communitywise, in health problem solutions.

Besides the hypothesis of "self-study," and the assumption of the inherent positive values resident in such a process, the field staff of social investigators had a few hypotheses of their own which were drawn from experience on the part of some of the staff in community work. Some of the cliches of community organizers related to "the whole community doing this or that," or that "self-study presumes wide participation," were subject to hypothetical question. The staff agreed to these hypotheses: (1) Salem, Mass., goes about solving its problems related to health in a manner that would conform to its general pattern of problem solving on a community-wide basis. (2) Community functions are delegated to specific groups within the community and, consequently, health organizations will have greater interest in promoting and extending a health study than other community groups. (3) A relatively small proportion of the total population will be involved in the "self-study." (4) A few leaders will emerge in the self-study process who will be primarily instrumental in furthering the study. (5) Matters of community-wide "policy" in relation to health problems will inevitably involve the community "power structure." (6) Members of the self-study committee will, in general, follow their traditional role expectations. (7) The formation of the study committee will be subject to the general eco-

nomic, political, and social processes that bear upon the parent sponsoring body—in this instance the Salem Community Council.

The hypotheses were pretty well borne out by the study. Salem is no exception to the general pattern of social structuring and stratification found in other communities studied by social scientists during the past few years. As a matter of fact, Salem might have a thing or two to teach other communities in the strength and rigidness of some of its patterns of stratification! Certainly, the health agencies and the members of the study committee were affected by the restrictions and limitations of the traditional social arrangements in the community. Salem's ethnic patterns with a dominant Yankee minority followed by Irish, French, Polish, Jewish, and Italian minorities were not unlike the patterns found by Warner in his Yankee City study, and the social intercourse (or lack of it) between the conflicting forces of such groupings has a real bearing on solving (or not solving) health problems.

Salem did complete a study of health needs. It did not seek outside help in completing its study, nor did it call upon the university team to help in any appreciable degree. (After a few side glances at the university research team, the community people involved in self-survey proceeded pretty much as though the team did not exist. Undoubtedly the team's presence had influence on the whole study, but the researchers were not asked to do much beyond explain their presence on two or three occasions.)

Salem got a health center after all the pains and processes of study were finished. The center was a remodeled school building, centrally located, and the fulfillment of a long-time dream of the local public health department director who was extremely active with a few other people on the self-study committee. Out of several recommendations made by the self-study committee, the health center recommendation was the only one acted upon immediately, and the immediacy of action reflected the interest of the director of health and a few people close to him.

The Salem study did not represent a wide participation study. It was a behind-closed-doors type of study. There was much committee talk of "grass roots participation," and on two or three occasions the public was invited to hear some of the conclusions that had been reached by the central committee of the health section of the local community council, but there was no public participation in the study beyond this. Neither was there any depth in the examination of agency services or resources. There was no going into the details of agency operations, personnel practices, etc., but rather the study consisted of piecing together the opinions of a group of health agency executives related to their conceptions of community health needs. Yet with all of this, the proper ritual words were used in public meetings, such as, "Salem believes, does, or thinks thus-and-so," when the reality was that a very few actually thought, did, or believed thus-and-so.

The research team was not surprised at this state of affairs, nor angry with Salem citizens who thus spoke. The community leaders in the area of health study merely confirmed some of the listed hypotheses. On the whole, our study may have raised more questions than it answered in relation to self-study as a means of solving community problems. One central question that it raised might be phrased something like this: "Can community personnel, interested in moving on major policy considerations in health practice, really isolate them-

Dr. Hunter is associate professor, School of Social Work, University of North Carolina, Chapel Hill, N. C.

selves from the resources and expert guidance available to them beyond community borders and do the most effective job in coming to grips with study and action problems?"

After observing Salem in action for two years and being very kindly disposed to its hospitable people and sympathetic to and encouraged by what they accomplished, we must say "No!" to the question above, and tolerantly speculate that if Salem people had had good outside help they might have received more for their money.

II—Citizen Participation, Social Scientists, and the Community Self-Survey

SOLON T. KIMBALL, Ph.D.

Social scientists are not alone in their knowledge that one of the requirements for successful group or community action is the opportunity for participation. Successful practitioners of the administrative arts are aware that the success of any new venture depends, to a very considerable extent, upon the degree of understanding and commitment to objectives and procedures. They also know that involvement flows from people working together upon a problem in which the results of their efforts bring general consensus.

The knowledge of the value of participation, however, is either not very widely disseminated or many persons lack the skills which permit them to integrate others into problem solving activities, if we use as our measure of dissemination the present practices in government and industry. The failures of adequate communication may be found wherever we look and, unfortunately, they appear all too frequently within the groups of which we are also a part.

The community self-survey is a device which, if properly organized, could extend enormously the range of citizen participation in one or several aspects of community living. Basically, it is an activity that seeks to determine the existing conditions, in an area such as health, and to formulate an action program to improve or correct deficiencies. It is assumed that when citizens have the opportunity to examine their own situation and discover unmet needs that there will result proposals for amelioration which will carry widespread support.

The problems associated with initiating, organizing, conducting, and concluding a self-survey are many. Those who seek to set the machinery of community action into motion are likely to encounter an obstructing inertia. Once started they will discover conflicting cultural currents and vested interests which threaten their objectives. Health, unlike sin, is controversial. There are problems of professional competences versus lay investigation and recommendation; of class, ethnic, and racial differences; of religious bias; of political viewpoint; and not least, of the role of the outside expert.

Initiation, Organization, and Program

In the early spring of 1951 four representatives of the Chamber of Commerce of Talladega, Ala., traveled the hundred miles to the University of Alabama to determine what resources were available

to aid them in the general area of community morale. There they learned that the Department of Sociology and Anthropology had the promise of a grant to study social process in a community conducting a self-survey of health. The health focus had not been paramount in their thinking, but they could see that many of the specific problems with which they were concerned might be included if its scope was broadly defined. The limitations imposed on the University of Alabama research group, and in turn upon the Talladegan representatives, were that approval be secured from the County Medical Association, the Board of Public Health, and the community. The community representatives returned home ready to set in motion the machinery that would bring the university researchers to their town. Approval was readily secured from the two medical agencies and in mid-May university representatives were invited to Talladega to meet with a larger group of Chamber of Commerce members. Another meeting with citizens and Chamber of Commerce committees was held in early June. From these gatherings there evolved working understanding on which future relationships were built between the university and the town. The central basis of the relationship was that all decisions affecting scope, organization, and policy rested with the community, such an arrangement coinciding happily with the objectives of each group. The town was wary of outsiders who might come to probe and reform. The researchers, on the other hand, wished to watch community process unfold with a minimum of disturbance from outside direction.

Two additional decisions holding major implication for future policy were also made at the early meetings. Questions were raised concerning the inclusion of Negroes and the white laboring population through their union representatives. There was agreement that labor unions should be invited to participate. There was further agreement that Negroes should be encouraged to form a separate group to study their own health problems. The precedent cited for this latter action was found in Community Chest and Red Cross campaigns where separate Negro groups were established. The discussion and decision gave testimony to the feeling that the survey should be community-wide, but the plan of organization gave recognition to the major cultural segments.

The survey, which came to be known as the "Health Inventory," required approximately one year to complete. During the following year, efforts were concentrated upon the implementation of some of the recommendations based on the findings. During this two-year period a team of social scientists from the University of Alabama were present in the community as consultants and observers, their objective being to derive principles of community process from the activities.

The citizen initiators faced a continuing series of problems, the intensity or magnitude of which varied with the specific phase of the survey. In the beginning it was necessary to elicit approval for the project from those who held a vested interest in health activities as well as from citizen leaders in the community. After this hurdle had been surmounted there was the need to build an organization that would determine policy, establish specific objectives, and direct energies in fact-gathering activities. The Talladega Community Council was created to serve this purpose.

The relationship between this group and the university team was an evolving one which became more clearly defined with each new situation. Questions of

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Dr. Kimball is professor of education, Teachers College, Columbia University, New York, N. Y.

respective responsibilities were the most frequent points of discussion. These were often related to routine or technical problems of fact gathering and reporting, but members of the team were also consulted on problems of policy and procedure.

There were continuous problems of arousing and maintaining interest and of preventing the violation of basic sentiments or traditions of behavior. The prevalence and intensity of this latter concern was itself a reflection of deep cultural and institutional divisions within the community. For Talladega was culturally heterogeneous in the segmentation of its population into (1) an upper stratum of managers, professionals, and business men and petty bourgeoisie; and subordinate strata of (2) Negroes, most of whom were laborers but containing a nascent middle class; and (3) the white laboring class. Each group counted in its membership approximately one-third of the town's population of 13,000. The differences between these three segments frequently appeared as problems threatening the fate of the survey.

The interim committee of the Chamber of Commerce proceeded immediately to the task of establishing a formal sponsoring organization. The date for a public meeting was announced and invitations were issued to each civic, social, and religious group, and to the principal institutions and industries to send two delegates. This first public meeting in late June achieved two results. By unanimous vote a Talladega Community Council was formed and interim officers elected with instructions to proceed with further organization plans.

The decision was made to hold a second public meeting in mid-July. Both program and election of permanent officers would be accomplished at the same time. The type of organizational structure, however, was determined by the chairman after consultation with others. It was decided that the governing body would consist of a Policy and Planning Board composed of a chairman, three vice-chairmen, and representatives selected from various segments of town life.

The second public meeting in mid-July gave to the Community Council its formal organization and officers and, in addition, a specific program. The delegates from the separate associations had been requested to bring with them suggestions of health problems to be investigated. When presented, many were actually proposals for correction of existing conditions, such as rat extermination, control of insect pests, correction of inadequacies in sanitation facilities, recruitment for nurses' training, nutrition education, and mental education. But all of these items also provided legitimate areas for study as did other suggestions which were more clearly oriented toward investigation. Some of the latter included garbage collection, fluoridation of city water, school performance and health, absenteeism and health, Negro housing, stream pollution, and rural health. The newly elected officers took the recommendation of this meeting as the basis for this program. Public sanction of specific areas for study appears to have been a crucial factor in determining subsequent activities. The areas of interest were grouped within 13 working committees supplemented by a community-wide questionnaire.

Activities of the University Team

The members of the university research team defined for themselves the double role of researchers and consultants. Their activities encompassed both functions but they also included more. Through their association with the Health Inventory and participation in other affairs in the town they began to be fitted into the town's social system.

The university team took as a first principle the avoidance of any activity which involved policy-making or leadership—gratuitous suggestions or criticism had no place in the official behavior. This position was one which was not completely accepted or understood by all the townspeople. Some of them felt that the university should be as much committed to the success of the venture as they were and, in addition, they believed the prestige of the university could be helpful in getting through some difficult situation.

The neutrality, however, did not extend to the point of isolation. The consultant role made it possible to discuss the advisability of various courses of action. The formation of a Community Council based on representatives selected from civic groups was discussed in great detail with the researchers before specific action was taken. Each public meeting was a joint problem in planning. Technical assistance in the construction of a questionnaire and the application of sampling technics was a major responsibility of the research team. They also gave instructions to the interviewers and did much of the tabulation. There were some routine activities which the researchers assumed though they felt were not properly a part of their responsibility. They did so only because the work needed to be done and no one else was available.

Some General Observations

Although the range of problems which arise in the organization and conduct of a self-survey may be very great, the Talladega experience provides us with two which merit special consideration. The first is concerned with policy and organization for securing a maximum of citizen participation. The second deals with the relationship between community and social scientists.

The Talladega situation was one in which the already existing cultural divisions separating whites and Negroes, and upper stratum from white laborers, provided major obstacles to easy inclusion of the two subordinate social segments into a self-survey. The result was that all of the planning and most of the activity was centered within the top third of the town's population, although most of the problems considered were of equal or greater importance to the other two-thirds. The question of equalizing participation through all social classes remains unanswered.

The activities of the top group, however, provide us with one device which seems of crucial importance. The determination of which health problems should be studied was secured by citizen participation in public meeting. Such public sanction gave a mandate to the officers without which they might have been much less inclined to examine areas of potential controversy. This type of action should be contrasted with situations in which the selection of health problems is left to professional experts. The latter procedure does not encourage public participation.

The second problem, that of the relationship between social scientists and community, also contains many ramifications. Although the university team remained aloof from policy-making and leadership, it did have an interest in the successful operation of the self-survey. This could be expressed when specific requests for consultation were made, but there were occasions when initiation to stimulate or inhibit action were taken. Such activity, however, was confined to informal conversations with members of the citizen group, but acceptance or rejection ultimately resided within the community.

The point is that the social scientist can have an active role within a community self-survey and still not impair

the basic responsibility of the community for its actions. This may be accomplished through providing skills when requested, but of equally great importance is the role of catalyst. Individuals and groups who normally do not work together may be stimulated to joint action through consideration of problems of mutual concern.

The complete report of the study has been published: Kimball, Solon T., and Pearsall, Marion. The Talladega Story: A Study in Community Process. Tuscaloosa, Ala.: University of Alabama Press, 1954. 259 pp.

III—Role of Social Relationships in Achieving Community Health Goals

CHRISTOPHER SOWER, Ph.D., and WALTER FREEMAN, M.A.

The research in community involvement reported in this paper is based on two assumptions: (1) That the achievement of many health education and other related goals in communities is related to the social organization of the community. (Specifically, such matters as beliefs, sentiments, leadership, and existing patterns of organization will affect the responses to the initiation of community action by health and other professional organizations.) And (2) that these patterns of community organizations and action contain regularities which make them subject to systematic classification and research. Also, that there is sufficient regularity in human community behavior that the findings and subsequent generalizations from such research will be appliable for further test or trial in other comparable community situations.

The program which became the object of this research consisted of a health survey sponsored by professionally trained persons occupying either official county offices or important positions in health organizations. The open sponsorship was done through the auspices of a new and fairly weak County Health Council. The professionals consisted of the director, the supervising nurse, and the sanitarian from the County Health Department, the county agriculture agent, the county school superintendent, the superintendent of a community hospital (also, president of the Health Council), and later the young president of the County Medical Society. With the assistance of certain other representatives from citizen groups, these persons sponsored a health survey which eventually involved 700 interviewers, largely women, in 23 communities in the job of interviewing over 10,000 families.

Although the survey findings are of interest to health professionals and may be obtained from the county, the primary objective of the research has been the sociology of community involvement. The research method consisted of a systematic observation and description of every major action event, interviewing of each participant involved in the major events, and later a systematic scheduled interview of 528 of the local participants.

Although the research is being reported in detail elsewhere, there are cer-

tain of the findings which will be of particular interest to public health workers. The first finding was that the people who initiated the project and those who carried it out did not agree either on the reasons for doing the survey or on their interests and beliefs about health. The second finding was that, lacking an understanding or appreciation of the need or reason for the survey, the local community participants worked on the project largely out of feelings of obligation either to other persons, to organizations, or to their communities.

In relation to the first finding the existing patterns of county to community and intracommunity social relationships stand out as important. Here we found major differences in viewpoints about the health survey and needed health planning and action between the county level initiators and the local community interviewers. The fact that the county professionals gave hundreds of hours from their already busy schedules attests to the amount of importance which they attached to the survey. They visualized two primary objectives, that of obtaining information necessary to facilitate more adequate health planning, and that of the education of the people. Specifically, they believed that the survey would have an educational value to the interviewers as well as to the informants. In turn, they saw the survey as a mechanism for later locating and involving local leaders in subsequent health action.

In contrast to this, the evidence shows that the local community participants viewed health and health problems in quite a different manner than did the professionals. With a high value placed on individual initiative along with deep set fear on an intruding government, the participants did not understand the objectives of the survey. Some of them, viewing health within a curative, here-and-now framework and not understanding the long-time objectives of the survey, responded to the stated fears of the extreme individualists who believed that the survey was "just another step in creeping socialized medicine." Despite extensive efforts at communication, and followed even by participation in the survey, few of the local interviewers viewed either health needs or the survey in a manner comparable to the viewpoint of the professionals.

Apparently an important element in the local community participants' lack of appreciation was their belief that the survey was unnecessary, 50 per cent stating that there were no health problems in their communities. Another 40 per cent indicated that there were problems in sanitation and water supply. Only a small number indicated a belief in the existence of health problems. Also, only 10 per cent considered that health was very much of a problem in the county as a whole. In contrast, the professionals were concerned about the health of the county, such as lack of immunization, contagious disease control, and in food planning, such as the widespread use of unpasteurized milk.

The second major finding of the research can best be presented by first posing a question. With such divergent opinions about the need for county health action as well as the need for a survey the logical question is how did the 700 people then become involved in spending the hundreds of volunteer hours to complete the survey? Why did they work on a project about which they had such little understanding or belief in its worth? The research data show rather clearly the answer: most of the participants, from the community leaders who organized their communities to

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Dr. Sower is associate professor, Department of Sociology and Anthropology, Michigan State College, East Lansing, Mich., and Mr. Freeman (formerly with Michigan State College) is now assistant professor, Department of Sociology, Mississippi State College, State College, Miss.

the final interviewer, worked on the survey because of feelings of obligation to either individual or group relationships.

The first set of obligation relationships was between the county professionals and local community leaders. The access lines which the professionals used in meeting community leaders were almost entirely from their regular professional agency positions with almost no influence coming from the County Health Council. The professionals visited persons with whom they had worked during past years and often for whom they had given either personal or community services. Many of these community leaders, also neither understanding nor appreciating the importance or necessity of the survey, agreed to become community sponsors out of feelings of obligation to the county professionals. In each of the 23 communities, then, a commitment to accept responsibility for completing the local survey was made by local persons obligated to the county professional. This commitment was made either for the whole community after an open meeting of neighborhood school district representatives, by an organization, or by one or more individuals.

This decision of local leaders in turn made the survey a legitimate project of the local community and set up the second set of obligation patterns, namely those from the local interviewer to the appropriately designated community organizer. Of all the participants interviewed, over 90 per cent stated that they participated because of feelings of obligation either to organizations, other persons, or to their community. Once the survey was made a legitimate project of the community, many interviewers felt obligated to give assistance in order to help uphold the name and reputation of their community in relation to others. Only 4 per cent indicated that they participated because of an interest in improving the health of the community.

In addition to the three types of local organization mentioned, those involving obligation to individuals, organizations, and to the community, there was a fourth type which was used in the county seat of 18,000. This has been labeled the urban-precinct type. It would appear similar to the way in which many community activities, such as financial drives, are organized in urban centers. Here many people were visited "cold," that is, the contactor did not previously know the potential worker. Often leads for these contacts were taken from the telephone book, the city directory, etc. Here the pattern of involvement was related to the individual's conception of herself in relation to her own individual needs to participate in community activity and her conception of community needs.

Although this research represents only one small attempt to further understand the process of community involvement which professionals utilize in achieving health goals, there would appear to be certain implications which can be used to guide further research and experimentation in the use of social organization for the achievement of public health objectives.

The research outline used to guide this study was carefully designed within a set of sociologically significant hypotheses. It was hypothesized that community action would follow a systematic model. The research design is that in an involvement process of this sort there must be a set of relationships given to initiation and sponsorship, and another set must be given to deciding whether the action is right or wrong. (This we have titled legitimation.) A third set of social relationships must then be brought together to do the work. These may be the same persons or as in the

instance of this health survey, they may be different—that is, professionals in the one instance, and largely women community volunteers in the other. The important implication of the research design is that each stage—initiation, legitimation, and execution must be fulfilled in order for the action to be completed. Although as anticipated, these stages of the action did overlap, the theoretical model was largely upheld by the research data. It is now felt that we have a considerably great understanding of the community involvement process.

Of interest are the opinions of the research team about the effectiveness of the health survey technic as related to the goals of the sponsoring group. It needs to be said first that any remarks on this subject are based on fairly systematic observation of the action for one year after the completion of the survey, but none since the publication of the final report of the survey about one year ago.

At the last observation it did not appear that the survey objectives had been moved very far toward completion. In the first place, only about half the total households of the county had been included in the survey. While no work has been done to determine either the geographic or social areas where the under-enumeration had occurred, it would appear obvious that the survey findings reflect this sample bias. There did not appear to be any significantly larger amount of enthusiasm for health action in the county. In fact, the banquet which was sponsored about one year following the completion of the survey to celebrate the publication of the survey report was poorly attended, especially by the local community survey participants. It was evident that few, if any, communities had done anything by that time as a result of either the survey findings or process. Although one community had organized a local health council, this did not appear closely related to the health survey.

On the other side of the ledger, the attendance at Health Council meetings was considerably larger. From the low attendance at some of the presurvey meetings, the last meetings attended by a member of the research team had over 20 persons present. Similarly, several young physicians had become involved in the council, and a young dentist was made its president. In a few instances, local survey organizers had become active in the council.

Along with this, the survey sponsors now feel that they have a certain number of possible contact persons in the local communities who may be helpful in future health organization work. The survey findings also have given the professionals from the Health Department and other agencies a "take-off point," so to speak, in giving talks to various organizations. In addition, the Health Department has reported an increase in requests for services such as for water testing. It is probable that the survey may have an organizational and educational value for some years. The fact of having worked on the survey, as well as further information about it, may continue to have some influence in helping to create a climate of opinion favorable to specific kinds of health programs.

In general, while the research team are of the opinion that there are more effective and less time-consuming, as well as more accurate ways of organizing systematic fact collection, than such a broad health survey, such a survey technic would appear to have a place in organizing and mobilizing community resources for the achievement of particular kinds of well defined health organization goals. It is probable that more effective results could be predicted from a survey plan (1) limited to more specific subject matter areas, (2) preceded by a complete compilation of exist-

ing information, and (3) including within the initial design fairly definitive plans and organizational structure for following up on the findings with community involvement leading toward action.

The more complete report of this research has been accepted for publication.*

* Sower, Christopher; Holland, John; Tiedke, Kenneth; and Freeman, Walter (with the collaboration of a Social Research Service Committee). Patterns of Community Involvement. Glencoe, Ill., Free Press.

Journal 25 Years Ago

The Health Councils of Early Days

In an editorial on health councils in the Journal of May, 1930 (p. 519), active health councils are reported in 10 cities, in one of which, Pittsburgh, the entire county is included. In addition, it is reported that councils of social agencies in about 20 cities include a group similar to a health council. The Cincinnati Public Health Federation is reported to be the first city health council. Massachusetts had the only state health council.

These figures contrast with the current situation in which 30 states are known to have health councils, some of them more active and more effective than others. The list of local health councils maintained by the National Health Council includes currently some 1,500, perhaps a majority of which are relatively inactive or could be called health councils by courtesy only. But even stripped to fundamentals, the number must be as many as 10 times the 30 reported a quarter of a century ago.

The 1930 editorial says of the National Health Council that with 15-member agencies it had recently been reorganized, primarily as a service organization for purchases, library maintenance, and other common services. This is in sharp contrast to the present situation in which the National Health Council, with a membership of 48 agencies, carries on annually a significant national health forum, is bringing a health careers project to completion, sponsors the National Advisory Committee on Local Health Departments with a membership of 75, has active committees dealing with health education and with state and local health councils.

As to purposes of a health council, one finds less difference between 1930 and 1955. The 1930 editorial mentions as among the purposes of a council, "to give moral support to the existing department of health," and "to secure improvement of existing health facilities and services and the establishment of new or added facilities or services where needed." The National Health Council's "Stepping Stones to a Health Council" now says in part, "Through group planning and expert study (a health council) attempts to prevent the placing of undue emphasis on certain problems . . . to discover gaps in the community's health program, and to build up services and initiate new programs to meet existing needs. . . . It goes without saying that the official health department is the focal point of the community health program."

Present Status of the Problem of Vaccination Against Poliomyelitis

JONAS E. SALK, M.D., F.A.P.H.A.

A hyperreactive state persists after polio vaccine, as well as measurable levels of antibody in the serum—One or both of these may be the necessary prerequisites for effective immunity to the paralytic disease.

While it is difficult to gauge, precisely, how many people think one way or another about an unsettled question, especially since opinions change as facts appear, it seems to me that a rather large number hold the view that an effective means for preventing paralytic poliomyelitis will come with the development of a live-virus vaccine. The point that is of particular interest to me is that many are of the opinion that even if a vaccine that contains nonliving virus is found to be effective, a live-virus vaccine would still be more desirable; and, if such could be developed, that it should be used either alone or in conjunction with a killed-virus vaccine.

I have consistently and assiduously avoided discussing the question of a live-virus vaccine for poliomyelitis, since there has been not much to discuss other than the idea. I see such obvious reasons for retreating from this idea, except as a last resort, that I have felt nothing could be gained by debate. I find, however, that the idea of a live-virus vaccine has exerted, and still does exert, a very powerful influence, and one that seems to determine not only attitudes and opinions, but policy for action as well. It is for this reason that the time has come for me to speak about this question.

Working Hypothesis

The work in which I have been engaged for some time, both in influenza and poliomyelitis,[1] has had as one of its objectives the determination of the validity of the hypothesis that it may be possible to create, with a noninfectious vaccine, an immunologic response that might surpass that which results from those mechanisms that normally operate to prevent the recurrence of disease. It is not meant to imply by this hypothesis that it is necessary to achieve such high levels of immunologic reactivity, in seeking a means for controlling a disease like poliomyelitis, since life-long immunity seems to be associated with recovery from the naturally acquired infection.[2] However, the hypothesis under consideration, if shown to have validity, would be of greater importance for those diseases in which recovery from infection seems not to be sufficient; for example, such diseases as influenza and the common cold, recovery from which

Dr. Salk is research professor of bacteriology, Virus Research Laboratory, School of Medicine, University of Pittsburgh, Pittsburgh, Pa.

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These studies were aided by a grant from the National Foundation for Infantile Paralysis.

does not seem to confer life-long immunity.

I know that the hypothesis stated above is contrary to a view held almost universally. The more widely accepted viewpoint is expressed by the statement, "There is no immunity like convalescent immunity." [3] This is merely another way of saying that it is not possible to reproduce the degree nor the quality of the immunity resulting from either natural infection or from the infection induced by a living-virus vaccine.

I would like to illustrate the many factors, both qualitative and quantitative, that enter into the immune reaction and to show that the response observed in the convalescent state can be simulated by the proper use of a properly constituted noninfectious poliomyelitis virus vaccine.[4] I want to stress this view, which is the result of experience gained in the course of studies, both with influenza and poliomyelitis vaccines, and its corollary, that the limitations that are usually attributed to vaccines that are colloquially referred to as "killed" vaccines are not limitations inherent in such vaccines, per se, but have to do either with the way in which such vaccines are constituted or the way in which they are used, or due to defections of both kinds.

Despite the fact that the principles that apply to immunization against poliomyelitis should be the same as those that apply, for example, to immunization against the agents that cause diphtheria or tetanus, there are many who appear to think that the laws of immunology that apply to other microbial diseases do not apply to poliomyelitis nor, in fact, to other virus diseases. The toxins produced by the diphtheria and tetanus bacilli, interestingly enough in this connection, are particularly undesirable because of their effect upon certain structures within the nervous system. You will recall that the primary site of action of the agents causing tetanus and diphtheria is in the tissues of a wound, and for diphtheria may be in the respiratory tract. In this respect there is a resemblance to poliomyelitis in that the virus reaches the central nervous system, as a secondary effect, from a primary site elsewhere.

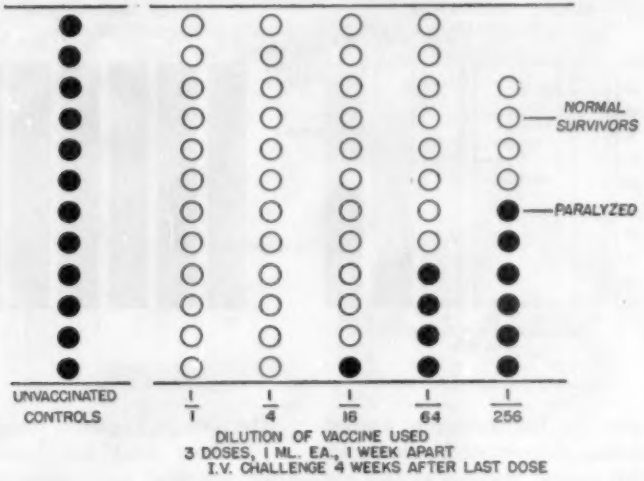
Results of Studies in Monkeys and in Man with Noninfectious Poliomyelitis Virus Vaccines

Studies in Monkeys—I would like to show the extent to which it has been possible, in experiments with a killed poliomyelitis virus vaccine, to simulate the immunologic effects that appear to accompany recovery from natural infection. But before I refer to results of experiments in human subjects in whom antibody measurements have been made following vaccination, I should like to show the results of an experiment in monkeys, in which different doses of vaccine were given to determine how little of the preparation under test was needed to produce resistance to an experimentally induced paralyzing infection. The results of such an experiment are shown in Figure 1 where it may be seen that, whereas all of the unvaccinated controls became paralyzed, none of the monkeys that had been given the undiluted vaccine or the 1:4 dilution of vaccine did so; and only one of the 12 given the 1:16 dilution, four of the 12 given the 1:64 dilution, and four of the 10 given the 1:256 dilution of vaccine failed to resist. The infection in these instances was induced by intravenous injection of the Mahoney strain of the Type 1 virus.

These same data, together with additional data accumulated from many other experiments, have been combined in Figure 2 to show what is known about the relationship, in monkeys, between level of antibody and resistance, when infection is induced via the intra-

Figure 1

Resistance of Vaccinated Monkeys to Experimentally Induced Paralytic Poliomyelitis



venous route. From the experience thus far it would appear that minimally detectable levels of antibody in the serum induced by active immunization are sufficient to prevent invasion of the central nervous system when the virus is blood-borne. This has been shown also by Bodian in studies with passively administered antibody.[5]

These observations are illuminating

Figure 2

Summary of Accumulated Data on Relationship Between Presence of Demonstrable Serum Antibody and Resistance of Cynomolgus Monkeys to Type 1 Poliomyelitis Infection

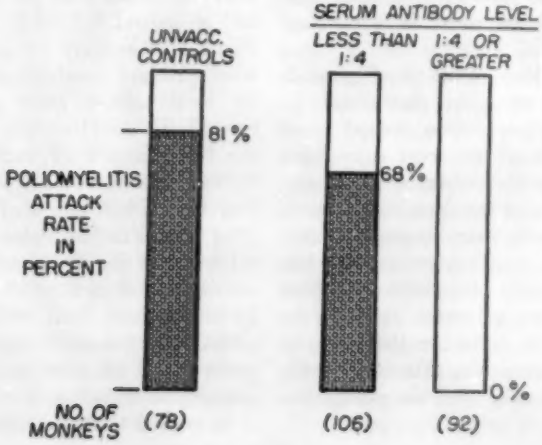
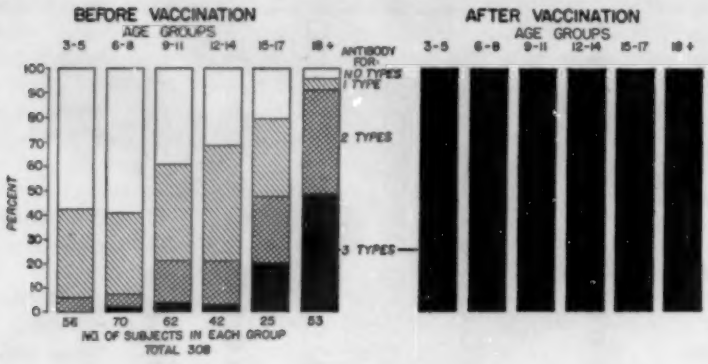


Figure 3

Antibody for One or More Types of Poliomyelitis Virus in Different Age Groups



with respect to immunization against the paralyzing disease where the virus reaches the central nervous system via the blood stream. Even though it is not known, with certainty, whether or not, in man, this is the exclusive or even the principal pathway by which virus reaches the central nervous system, it is highly probable that it is. If not, then there is additional supporting evidence, derived from experiments in monkeys, to indicate that resistance of a similar order of magnitude can be induced against virus introduced into the central nervous system, but that the antibody level required is somewhat higher.[6]

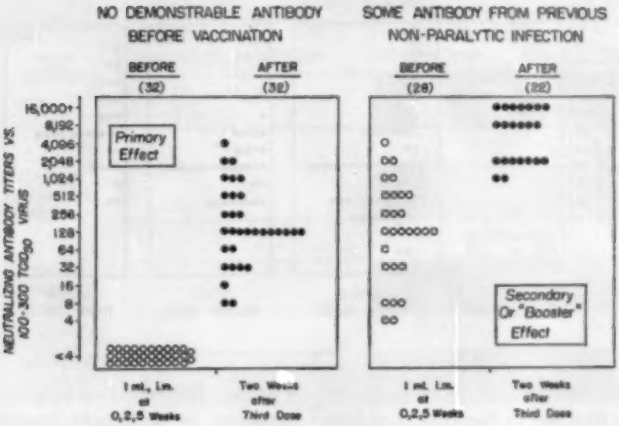
Studies in Man—Data in Figure 3 are presented to show the extent to which in some population groups there are individuals of different ages who do not possess demonstrable antibody for one or more of the three virus types. These individuals were vaccinated, and their antibody status after vaccination is also illustrated. On the assumption that the presence of serum antibody in man is likely to influence the state of immunity to paralysis, this chart indicates both the need and the possibility of solution.

The data in Figure 4 (modified from (7)) show what has been observed after primary vaccination in persons who, prior to vaccination, showed no demonstrable antibody to the respective types. For comparison, data are included on the distribution of antibody titers in persons who had experienced a nonparalyzing infection at some indeterminate time in the past. You may see, also, the extent to which vaccination causes the level of naturally acquired antibody to rise further. The extraordinarily high antibody titers observed after vaccination in persons who have had a natural infection, have been induced also entirely by artificial means when primary vaccination was followed by revaccination after a suitable interval.[7] It would appear that, to elicit the full measure of antibody response by vaccination, two steps are required; therefore, when one speaks of vaccination, it must be made clear as to whether reference is made to the primary vaccination effect or the full effect that can be said to have been induced only after a so-called "booster" injection has been given at an adequate interval following primary vaccination.

In regard to the question of adequate

Figure 4

Distribution of Types 1, 2, and 3 Antibody Titers Before and After Vaccination with Aqueous, Trivalent Poliomyelitis Vaccines in Persons with



interval, the response to more than one dose, given at short intervals of one another, is illustrated in Figures 5 and 6 (modified from (7)). Here it may be seen that three doses, given within a five-week interval, induce little more after the second and third doses than had been produced after the first. However, the level achieved after the first dose was distinctly higher in persons who had some antibody as a result of a previous immunologic experience (Figure 6), as compared with persons who had had no prior experience (Figure 5). Although it has been known that repeated injections, within relatively short intervals, are not as effective as repeated injections at longer intervals, it has been interesting to observe that for the full booster effect in man it will be necessary to allow a lapse of time in excess of four months, and possibly, less than seven months, before the full response can be elicited by the booster injection. The studies upon which this statement is based are still in progress.

Persistence of Vaccine Effects

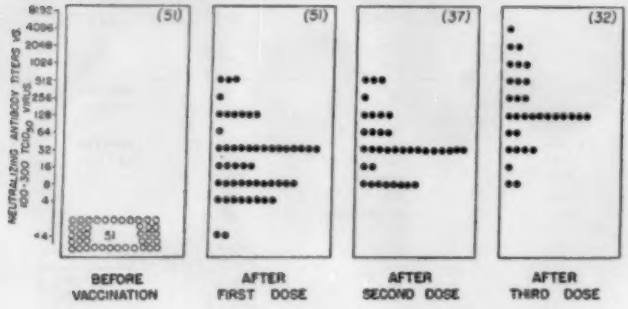
While all of this is of considerable interest and provides the answers to certain questions regarding the immunologic effects that occur within a short time after vaccination, the question that then comes to the fore for an answer is, "How long will these effects last?"

One of the most important factors that influences immunizing effect and its persistence is the nature of the antigen, or the capacity inherent in the antigen, in this case the killed poliomyelitis virus, not only to incite antibody formation but to leave a lasting impression upon the antibody forming cell. It is well known that not all substances are antigenic, and those that are differ among themselves with respect to the ease with which they can call forth antibody. While the various strains of poliomyelitis virus that we have studied, in general, seem to be very good antigens, certain strains among those examined appear to be better than others.[8] All of this could have been assumed a

Figure 5

Primary Vaccination Effect

Influence Upon Antibody Level of Each of Three Doses Spaced at Intervals of Two and Five Weeks After First Dose



priori and, in fact, it was such an assumption that led to the very first tests in man,[9] and revealed that quantities of virus that were generally considered to be too small to be effective were, in fact, surprisingly active in inducing antibody formation. The discovery of the relatively small antigenic mass required to produce the hoped for effects has made relatively simple a task that had seemed to be a very difficult one. Further investigation exposed the differences in antigenic capacity among different strains.

In regard to the specific question of antibody persistence, there is the general observation that in most immunologic reactions there occurs a relatively large output of antibody very shortly after the injection of an antigen, and that after this initial phase antibody production continues at such a rate that

Figure 6

Secondary or "Booster" Effect in Persons Who Have Had a Natural Infection

Influence Upon Antibody Level of Each of Three Doses Spaced at Intervals of Two and Five Weeks After First Dose

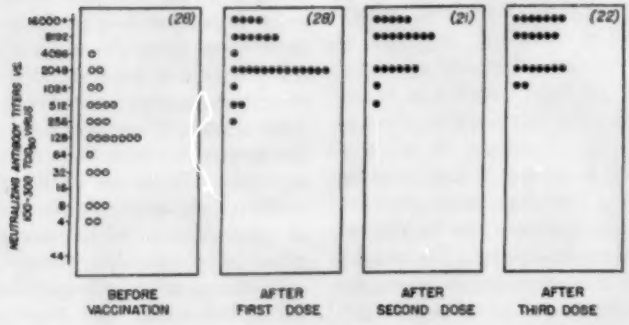
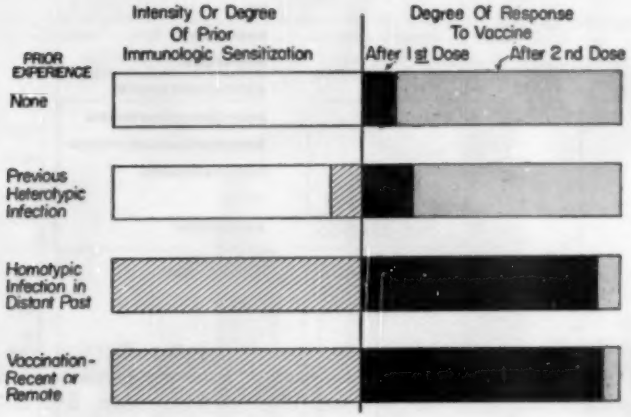


Figure 7

Influence of Prior Immunologic Experience Upon Degree of Antibody Response After Vaccination in Persons with No Demonstrable Serum Antibody at the Time of First Inoculation



the balance between antibody elimination, or destruction, and antibody production, results in persistence of a greater or lesser amount of antibody, and for longer or shorter periods of time.[10] However, there remains throughout the life of the animal, or the individual, a heightened reactivity,[11] so that upon later encounter with the same antigen, antibody production begins more rapidly and occurs to a greater extent, even upon relatively minimal stimulation, as compared to that required to induce the initial response (Figures 6 and 7). Moreover, it appears that the level of antibody that persists after reinoculation at a later time is distinctly higher than the level that tends to persist after primary stimulation. Nevertheless, when one examines the slope indicating the rate of antibody decline following vaccination, whether primary or booster, one can obtain some estimate of the length of time over which a measurable level of antibody will be present (Figure 8).

Figure 8

Influence of Prior Immunologic Experience Upon Degree of Persistence of Measurable Antibody Titer

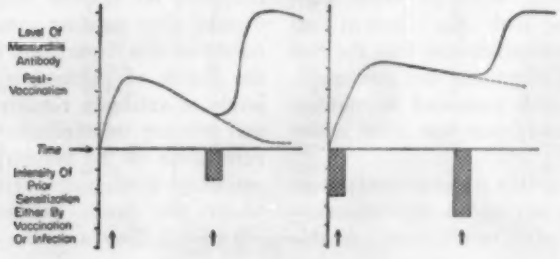
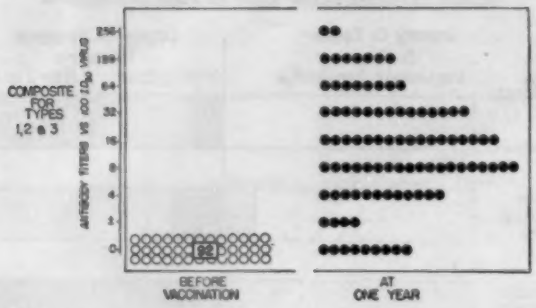

Level Of Measurable Antibody Post-Vaccination
Time
Intensity Of Prior Sensitization Either By Vaccination Or Infection

Figure 9

Degree of Persistence of Antibody One Year After Primary Vaccination



Sufficient time has not yet elapsed to tell the full story of persistence of antibody following a course of vaccination in which a booster injection was given at a sufficiently long interval after primary vaccination to produce the full immunologic effect. Nevertheless, the trend that has been observed is most encouraging indeed. This is true despite the fact that the experiments upon which this statement is made were performed with vaccine preparations and with dosage schedules that are far removed, on the potency and effectiveness scale, from vaccines that are now available, or using schedules that are optimal. With these reservations, that may seem like apologies, I should like to show the distribution of antibody levels one year after primary vaccination in human subjects who possessed no demonstrable antibody prior to vaccination. This information is shown in Figure 9. It is of interest that, although these subjects merely had the benefit of primary immunization and that the full immunization effect was not attempted, the majority still possessed substantial levels of antibody one year after initial treatment.

In another group measurements were made at intervals up to approximately seven months after vaccination. At this point a booster injection was given and serum antibody levels were determined 12 days and, again, five months after the booster. It is clearly evident from the summary in Figure 10 that a high order of persistence of antibody appears to follow the use of vaccines constituted as were those here employed.

In another series of observations we have noted that the decline in antibody titer is rather gradual in the interval between two and 20 months after vaccination where the dose employed was so little as not to have been expected to produce any effect. This experiment, in fact, had been designed initially [9] to determine whether or not a skin test might be developed to indicate prior infection with one or more of the three types of poliomyelitis virus. The data in Figure 11 show the levels of antibody at two intervals after primary vaccination and also show the sharp response following the booster dose given at 20 months after the first vaccination. The results of this experiment show not only the degree of persistence, even of low levels of antibody resulting from minimal primary immunization, but also the persistence of the heightened reactivity resulting from primary immunization about two years earlier. Moreover, Figure 12 illustrates the comparability

Figure 10

Geometric Mean Antibody Titers Before and at Intervals Up to Seven Months After Primary Vaccination and After a "Booster" Injection. (Composite of Data for Types 1, 2, and 3.)

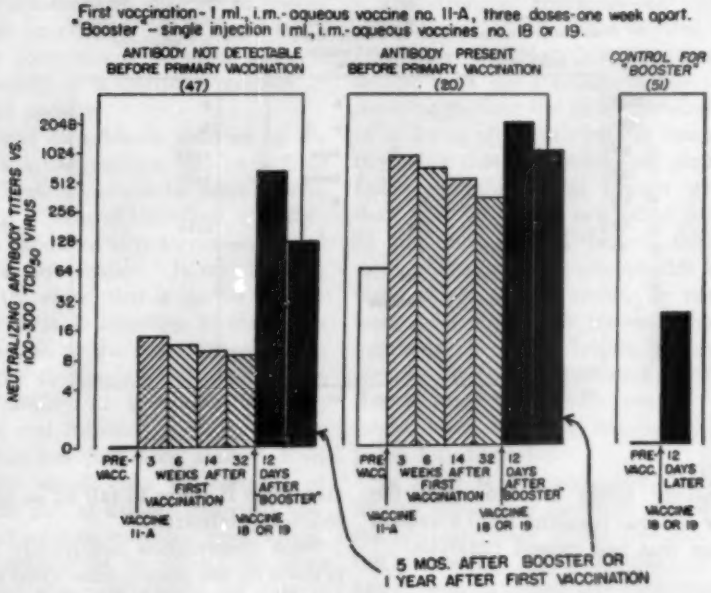

First vaccination - 1 ml., i.m. - aqueous vaccine no. 11-A, three doses-one week apart.
"Booster" - single injection 1 ml., i.m. - aqueous vaccines no. 18 or 19.
ANTIBODY NOT DETECTABLE BEFORE PRIMARY VACCINATION (47)
ANTIBODY PRESENT BEFORE PRIMARY VACCINATION (20)
CONTROL FOR "BOOSTER" (51)
NEUTRALIZING ANTIBODY TITERS VS. 100-300 TCID50 VIRUS
2048
1024
512
256
128
64
32
16
8
4
0
PRE-VACC.
3 6 14 32 WEEKS AFTER FIRST VACCINATION
12 DAYS AFTER "BOOSTER"
VACCINE 11-A
VACCINE 18 OR 19
12 DAYS LATER
5 MOS. AFTER BOOSTER OR 1 YEAR AFTER FIRST VACCINATION

Figure 11

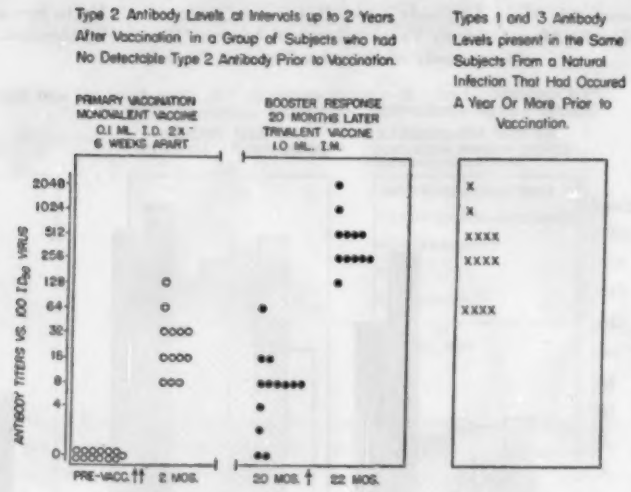
Two-Year Follow-Up in First Group of Subjects in Whom Vaccination Studies Were Undertaken

AGE AT TIME OF FIRST VACC.	IDENTIFICATION NO.	TYPE 2 ANTIBODY TITER vs. 100 ID_{50} VIRUS			
		BEFORE VACC.*	2 MOS.	BOOSTER AT 20 MOS.**	22 MOS.
2 years	W-44	0	32	8	2048
4	W-31	0	64	8	1024
5	W-18	0	16	8	512
6	W-27	0	8	2	512
8	W-20	0	128	64	256
9	W-33	0	8	0	256
10	W-8	0	4	0	512
10	W-26	0	16	8	256
11	W-74	0	32	4	512
14	W-34	0	16	8	256
17	W-1	0	32	16	128
17	W-32	0	32	16	N.T.
31	W-3	0	16	8	256

* 2 DOSES I.D. OF 0.1 ML. EACH 6 WEEKS APART MONOVALENT MEF-1 1-250 HCO - 1 ^{60}Co

** 1 DOSE I.M. OF 1 ML. TRIVALENT VACCINE.

Figure 12


Type 2 Antibody Levels at Intervals up to 2 Years After Vaccination in a Group of Subjects who had No Detectable Type 2 Antibody Prior to Vaccination.
Types 1 and 3 Antibody Levels present in the Same Subjects From a Natural Infection That Had Occured A Year Or More Prior to Vaccination.
PRIMARY VACCINATION MONOVALENT VACCINE 0.1 ML. I.D. 2 x 6 WEEKS APART
BOOSTER RESPONSE 20 MONTHS LATER TRIVALENT VACCINE 1.0 ML. I.M.
ANTIBODY TITERS VS. 100 TCD50 VIRUS
2048
1024
512
256
128
64
32
16
8
4
0
PRE-VACC.
2 MOS.
20 MOS.
22 MOS.
x
x
xxxx
xxxx
xxxx

of antibody levels induced after the booster and that resulting from a natural infection that had caused paralysis.

Discussion

The early trends seem to indicate that antibody induced by a killed vaccine persists for relatively long periods of time; the observation of so gradual a slope, even after minimal primary vaccination, furnishes the basis for considering the probability of inducing antibody that will be present in the serum in measurable amount for a long period of time. While I call attention to these observations indicating a very appreciable degree of persistence of measurable antibody, even after minimal primary vaccination, other investigators might draw attention to some patients who exhibit in the early phases of convalescence from natural infection a sharp decline in antibody titer. The statement might then be made that, "How can one expect antibody to persist following the use of a killed vaccine when it seems to fall off so sharply following infection?"

Such observations can readily be explained by the phenomenon cited earlier in which there occurs a high level of antibody resulting from the large output immediately after antigenic stimulation, whether by infection or by vaccination. Although there may occur a sharp rate of decline in some individuals the slope of antibody decline becomes more gradual a few months after infection or vaccination than it is in the first few weeks, and at that time reflects the kind of change that may be expected to occur in the ensuing months or years. A great many older children, as well as adults of various ages, who have been observed possess no demonstrable circulating antibody to one or more of the virus types, but give evidence of having had a prior infection; the evidence of this is the occurrence of a sharp rise in antibody titer upon first vaccination, far greater than that observed in persons undergoing primary stimulation. These observations serve

to point up the fact that a great many variables exist in the immunologic reaction that follows infection or vaccination and that generalizations of one kind or another are difficult to make; they can be misleading, if based upon too few observations or upon observations merely of a restricted portion of the total picture.

The level of antibody induced by the use of a killed vaccine can be similar to the levels observed in persons who have had a natural infection; the antibody so produced is not evanescent and can be easily recalled. It may be concluded, therefore, that it should be possible by suitable attention to the qualitative as well as the quantitative factors that apply to simulate both the degree and durability of immunity resulting from natural infection.

If what has just been said is true, then why should one be desirous of taking the risk of using a live-virus vaccine to attempt to immunize man, albeit, at the moment of injection, the virus inoculated is nonpathogenic for experimental animals. Perhaps the answer to this question might be that one would want to do so only if it were not possible to accomplish the desired objectives with a killed vaccine.

But then there are other answers which are less satisfactory, namely, that a live-virus vaccine has been found to be so highly effective against smallpox and yellow fever and, therefore, would be the kind of vaccine of choice for poliomyelitis. It is true, of course, that effective live-virus vaccines are available for the control of smallpox and yellow fever, but there are some who see in a live-virus vaccine for poliomyelitis the risks involved in putting live poliomyelitis viruses into man, and in this respect there is sufficient difference from smallpox and yellow fever to make one hesitate to attempt to pattern a solution for poliomyelitis along similar lines.

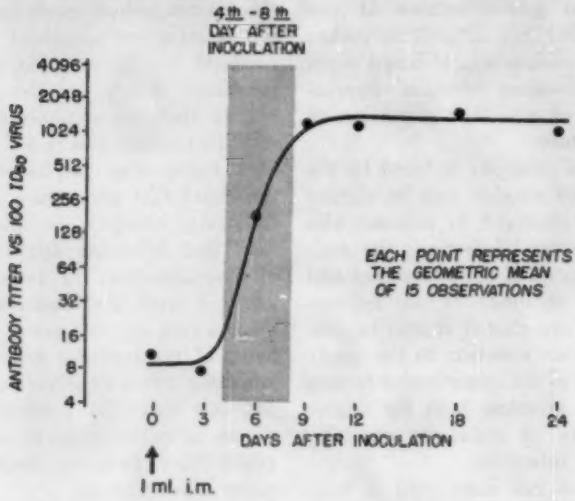
It has also been said that there are no satisfactory killed-virus vaccines for human diseases and for this reason it is not likely that a satisfactory killed vaccine for poliomyelitis can be had.

The strongest argument—or perhaps I should say the one that is cited most frequently by those who continue to believe that the solution to the poliomyelitis problem lies in the development of a living-virus vaccine—is based on the belief that persistence of immunity following infection is always greater than that following any other method of immunization. I believe that the grain of truth that underlies this statement exists as the result, in part at least, of comparisons between the immunizing effect of infection and an incomplete immunizing effect that can be shown after inadequate use of what might have been an improperly prepared killed vaccine.

In reply to the foregoing, I should like to draw your attention to some of the characteristics of the vaccine used for preventing smallpox—this, as you know, is a modified live-virus vaccine that induces infection, and in this way confers immunity to the virulent virus. However, you are well aware that confidence does not exist in the lifelong effect of such a vaccine, as is attested to by the requirement of certification of primary vaccination, or of revaccination, within three years prior to entry, or re-entry, into this as well as most countries. You will recall, too, that following the introduction in 1947 of a case of smallpox into New York City a rather high proportion of persons who had good scars from earlier smallpox vaccinations were found to be fully susceptible, as indicated by the development of good primary takes.[12] Might this, therefore, not indicate, despite the fact that virus multiplication had taken place at the time of the first vaccination and that an infection had been established, that lifelong immunity did not necessarily follow? I cite this example

Figure 13

Time of Appearance of Rise in Serum Antibody Titer in Human Subjects After Secondary Antigenic Stimulation



not to detract from the value of smallpox vaccine, or other live-virus vaccines, but to indicate that the advantages and limitations of every procedure must be determined individually; and that the statement, "There is no immunity like convalescent immunity," which implies that immunity following infection may be absolute, is not necessarily true.

Rivers and Ward some years ago, when attempting to use for immunization of children a smallpox vaccine consisting of living vaccinia virus cultivated in tissue culture,[13] found in testing for resistance that the immunizing effects of the vaccinia virus propagated on the calf in the conventional way produced much more durable immunity than did the further modified strains that were of reduced pathogenicity[14]; the less-pathogenic strains seemed to lose antigenic potency as well. This observation is an important one, illustrating a principle that may well reappear in the course of observations being made in the studies with the nonpathogenic variants of poliomyelitis virus where the levels of antibody induced by the use of modified viruses,[15] either in man or in animals, appear to be much lower than those which we have observed following either infection with virulent viruses or immunization with virulent viruses converted to the noninfectious form by treatment with formaldehyde.

Using the same technics that are employed for the selection of variants that are nonpathogenic, we are searching for variants that possess the most potent antigenic capacity rather than those that are the least pathogenic, because strains that are the most potent antigenically, regardless of their pathogenic characteristics, can always be converted readily into the noninfectious form for the preparation of a killed-virus vaccine. The story of the vaccinia virus, cultivated in tissue culture, may well find its parallel in the poliomyelitis viruses where it appears, in some instances at least, that diminution of pathogenicity for animals may be associated with a diminution of

antigenic potency as well.[14] The existence of differences in degree of persistence of immunity following infection is the result of the operation of the same fundamental immunologic laws that apply to the use of noninfectious vaccines.

Summary

In the course of exploring the extent to which the basic laws of immunology apply to poliomyelitis a number of observations have been made. Perhaps the most important one made in the course of these immunologic investigations, was that the poliomyelitis virus is a relatively potent antigen, and that the quantity of virus as determined by infectivity measurements necessary to produce an antigenic effect was much less than could have been anticipated a priori. Not only has it been observed that levels of antibody induced by the nonliving form of the poliomyelitis virus can be manipulated by attention to details of dosage and interval between inoculation, but that the degree of persistence of measurable antibody can be similarly influenced.

But perhaps of equal importance is the fact, known for other antigens and now for poliomyelitis, that once sensitized by a previous injection of vaccine the individual so treated is not the same as he was before vaccination. He now possesses what appears to be a heightened state of hyperreactivity, so that antibody response to vaccine given at a later time will produce a booster effect. The question remains as to whether or not the persistence of measurable levels of antibody in the serum or the presence of the hyperreactive state which we know will provide a rapid boost in antibody level (Figure 13) is the necessary prerequisite for effective immunity to the natural disease. Regardless of which is required, it appears that either can be maintained.

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Atmospheric Pollution: A Growing Problem in Public Health

MORRIS KATZ, Ph.D.

Measurement of the effect of gross atmospheric contamination upon the health of exposed neighborhoods is obviously a difficult matter. A promising attempt to create a solid statistical base from which the benefits of a control program might be measured is under way in Detroit. It is a project about which many will want to keep informed.

Probably the most baffling problem in the field of public health today is the elucidation of the role of atmospheric pollution on the health of the community. The effects of industrial exposures to a considerable number of relatively pure toxicants have been studied intensively by medical and industrial hygienists for many years. Careful observation and experimentation on animals and human beings have led to the acceptance of the threshold limit values of maximum allowable concentrations (MAC) of a long list of gases, vapors, mineral and other dusts, fumes and mists to which an industrial worker can be exposed for eight hours daily for an indefinite period without injury or occupational disease. These values are reviewed and new substances are added to the growing list from year to year by the American Conference of Governmental Industrial Hygienists and other interested organizations. Such data provide only limited help in attempts to extend the information to air pollution problems in relation to community health. The MAC values are far higher than the concentrations occurring in the outside atmosphere in polluted areas even during periods of severe smog. They are not applicable to those persons with impaired health, the very young, and the aged.

In the atmosphere of industrial communities a great number and variety of contaminants ranging from known compounds to those of unknown or indefinite composition are found. They represent the waste products of all human activities from the vast range of industrial processes to products of combustion of solid, liquid, and gaseous fuels, evaporation of liquid hydrocarbons from storage tanks and exhaust gases from automobiles, busses, and trucks. The picture is complicated still more by reactions of a photochemical and catalytic nature which can occur between gases and vapors or between gases and particulate matter after liberation to the air.

It is unlikely, therefore, that effects on community health can be assessed in a simple manner, except in the case of the accidental release of some contaminant in large excess or where the symptoms are sufficiently unique to point to a single source. The Poza Rica incident in which 22 persons were killed and 320 were hospitalized from the accidental release of hydrogen sulfide from a sulfur recovery plant at a refinery could be explained readily from symptoms and physiological effects.[9] Eisenbud, et al.,[10] have described an interesting case of chronic beryllium poisoning from a beryllium manufacturing plant involving a number of persons in a nearby com-

munity. Exposure to the contaminated community atmosphere over a period of about eight years resulted in 16 cases of poisoning, of which five were fatal.

It is well known that the exposure of human beings, animals, and other living organisms to toxic substances can lead to acute or chronic injury, depending upon the concentration, duration of exposure, and various environmental and susceptibility factors. On the other hand, if the concentration is low enough, there may be no apparent deleterious influence even after prolonged exposure. In the case of the community pollution problem, a large number of substances of varying degrees of toxicity are acting together, excluding those particulates of a size greater than about 5 μ in diameter that cannot penetrate into the lungs.

Much has been written about air pollution in relation to community health in recent years. The problem has been discussed by Kehoe,[17] Doyle,[3] McDonald, Drinker, and Gordon,[15] and others.[1, 28] Townsend presented a summary of the deliberations of the health panel at the United States Technical Conference on Air Pollution [1, p. 31] at which 14 papers dealing with various health aspects were presented. The following quotation is of importance because no substantial progress has been made to date in evaluating this difficult problem:

1. The pollution of the atmosphere with allergenic material of natural, artificial, and industrial origin is associated with a frequent, and apparently increasing, occurrence of acute and chronic disease, involving especially the respiratory tract and the skin.

2. Certain acute manifestations, caused primarily by respiratory or ocular irritation, have been observed in association with industrial operations and accidents and unusual weather conditions in localized areas.

3. The effects of the more common atmospheric pollutants upon the general health of the population of our urban and industrial centers have not been demonstrated in the form of authenticated chronic disease processes.

4. The complexity of the problem is such that further evidence must be sought before the hazard to public health can be appraised adequately.

Acute Effects

The acute effects of various atmospheric contaminants on vegetation have been studied intensively and a considerable body of literature is available on sulfur dioxide, fluorides, ethylene, sulfuric acid aerosol, "smog" gases, and others.[6, 20] Similar effects on man have been demonstrated in several air pollution disasters, including that at Donora, Pa.,[11] and the London fog of December, 1952.[2] However, in no instance did the investigations on the environmental and medical aspects of these disasters provide an answer to the question of the causal agent responsible for the severe respiratory symptoms and deaths. In the Donora case an extensive study of its epidemiologic aspects and of the environment subsequently by the Public Health Service led to the conclusion that no single polluting agent was present in sufficient quantity to account for the acute injury to the health of the population. Responsibility was placed on a synergistic factor involving some combination of contaminants.

Foulger [18] has discussed the general and special physiological effects in the Meuse Valley (Belgium, December, 1930) and Donora incidents. These are strikingly similar. The environment contained irritant and nonirritant chemicals in gaseous form adsorbed on solid particles or moisture droplets. No single contaminant would have had to be

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Dr. Katz is chairman, Canadian Section, Technical Advisory Board on Air Pollution, Defense Research Chemical Laboratories, International Joint Commission, Ottawa, Canada.

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present in sufficient concentration alone to cause the parallel physiological and clinical picture. The symptoms and signs were irritation of the eyes and respiratory tract, followed by coughing, nausea, vomiting, headache, and dyspnea. There were varying stages of circulatory collapse, cardiac decompensation, and pulmonary edema. Death was due to predominantly acute cardiac failure, with or without obvious cardiovascular pathology. The majority of the victims were the old people, those with respiratory diseases, cardiovascular disease, and disturbances of the respiration (asthmatics) or of the circulation.

The latest report on mortality and morbidity during the London fog of December, 1952, attributes between 3,500 to 4,000 deaths to the severe atmospheric pollution conditions which accompanied the four- to five-day period of temperature inversion. The height of the inversion layer varied from about 250 to 400 feet and was mainly responsible for the continued build-up of atmospheric contaminants. In contrast to other disasters, measurements are available of the extent of this build-up during the smog from routine observations of total suspended matter and of sulfur dioxide. The daily mean value of total suspended particulates (smoke) reached a high of 4.46 mg. per cubic meter in the center of London. This is about 10 to 11 times greater than the normal mean smoke concentration for this area. The corresponding high for sulfur dioxide was 1.34 ppm or about six times the normal mean. Other contaminants which were not measured but which were known to be present are sulfur trioxide, carbon monoxide and dioxide, exhaust fumes from motor vehicles and other organic products of combustion. The mortality statistics showed that the harmful effects were most pronounced in people over 65 and in people who were already suffering from chronic ill-health. The morbidity records indicated the possibility that the smog effects in causing sickness in healthy people may not have been so rapid as in causing mortality among those already ill.[2]

Comparison of the pathology of the conditions produced in those who were affected brings out points of similarity in the London, Donora, and Meuse Valley episodes. Again, it was found impossible to state that any one pollutant could have been the cause of death. Nor does a review of previous smog incidents provide any information of value in elucidating the cause of deaths and illness. It was concluded that the irritants mainly responsible were probably those contaminants derived from the combustion of coal and its products. The lethal effects were almost wholly confined to persons already suffering from chronic respiratory and cardiovascular disorders.

Recently, Hemeon [21] presented an interesting hypothesis on the causal agents in the Donora and London episodes, based on the analysis of samples from air cleaning filters, representing particulate material collected during the above two smog periods. In the water soluble fractions of these samples, the one from Donora contained relatively large quantities of zinc ammonium sulfate and zinc sulfate. The water soluble smog solids from the Donora sample represented 22 per cent of the original material. The zinc ammonium sulfate was present to the extent of about 58 per cent and the zinc sulfate in the amount of 21 per cent in the soluble component. The water soluble fraction of London solids represented about 30 per cent of the sample. This was composed principally of ammonium chloride and calcium sulphate. Hemeon suggested that such soluble salts of ammonium sulfate and chloride may be the primary substances responsible for respiratory irritation in smog episodes.

It is also suggested that sulfur trioxide or its acidic salts which were also present in the above fractions may contribute to the irritant effects. This theory will have to be tested by carefully designed physiological experiments.

The author has tested the toxicity of zinc ammonium sulfate of the above composition (confirmed by x-ray diffraction) on mice in a preliminary manner. This substance is odorless and showed no toxicity whatever on ingestion by the experimental animals to a concentration of 40 mg./kg. of body weight. This is about 40 times or greater than the concentration that could have been built up in the body of a person of weight 70 kg. during the five-day Donora smog period at a breathing rate of 20 liters per minute as calculated from the Hemeon data.

Chronic Effects

The status of our knowledge of chronic effects of air pollution on public health has been summarized by Williams,[23] Kehoe,[17] and others.[15, 16, 18] The difficulties involved in an epidemiologic approach to this problem are of formidable proportions. First, one must search for a reliable index of pollution in relation to health. This involves a thorough study of the environment on a continuous basis. The total amount of contaminants discharged to the atmosphere over a city or industrial area may not vary substantially from day to day except on week ends, because it reflects the scale of all human activities in terms of industry and population. However, the mass concentration of pollutants per unit volume of air will vary widely because of meteorological conditions. In clear weather and conditions of good turbulence the emissions from a multitude of sources are diluted rapidly and quickly dispersed to harmless proportions. During cloudy weather or periods of atmospheric stability, contaminant emissions are dispersed much more slowly and the concentration in unit volume increases. Natural air cleaning processes are effective in maintaining the atmosphere in a reasonably wholesome state. These include changes of air masses over wide areas by the passage of fronts, sedimentation and impaction of particulate matter, removal of contaminants during periods of precipitation, and absorption of gases by soil, water surfaces, and vegetation.

Basic studies of the environment include the continuous measurement of dustfall or coarse particulates, suspended matter or aerosols, and major contaminant gases such as sulfur dioxide, aldehydes, "oxidant gases" or ozone, fluorides, and others. Less frequently, it is expedient to determine the levels of concentration of oxides of nitrogen, ammonia, chlorides, carbon monoxide and hydrocarbon gases or vapors. The condensable organic vapors and other gases may be collected by low temperature freeze-out technic and analyzed subsequently by means of the mass spectrometer and other spectrometric methods.

The particulate matter suspended in the air is extremely complex in composition. It consists of carbon, soot, and tarry material, organic and inorganic components. The inorganic fraction contains a considerable number of metallic elements of which the most abundant are silicon, calcium, aluminum, iron, magnesium, lead, and manganese. Small amounts of other metal elements are also present, including zinc, copper, titanium, tin, vanadium, cadmium, and beryllium. The amount of these elements represents usually about 10 to 20 per cent of the total weight of the air-borne particulates. Comparisons of the average composition of this material with respect to metal elements in a number of industrial cities in the United States, including the Windsor-Detroit area, indicate only

minor variations in percentage composition.[3, 5, 7, 8]

The composition of the organic fraction is still largely unknown because of its complexity and the difficulties involved in isolating specific compounds from the intractable mixture. A comprehensive investigation is under way in the author's laboratory on samples of this material collected in the Detroit River area on fiber glass filters. Over 30 fractions differing in ultraviolet absorption and other properties have been obtained by chromatographic adsorption methods. It is probable that this fraction is of greater importance in the study of chronic effects on health than the inorganic material under normal circumstances in an industrial area. When the level of contaminants increases under adverse weather conditions, the concentration of the organic portion of air-borne particulates tends to increase much more than the inorganic fraction.

It is evident that meteorological investigations of the environment are a necessary part of any study of the effects of air pollution on health. These include measurements of wind speed and direction, lapse rate and turbulence, and temperature, humidity and precipitation. Visibility and solar illumination are also factors which must be included. The prerequisite for a sound approach to the problem of chronic injury is to provide for the continuous record of fundamental environmental and meteorological observations on a continuous basis concurrently with measurements of ill-health in properly established pollution and control areas.

There have been many attempts in the past to use mortality statistics and data on various diseases of the population in order to show the relation between such death rates and smoke, smog or fog in the environment.[15] Mills [16] attempted to relate the incidence of respiratory disease to differences in dustfall in certain areas of a number of cities in the United States. Such clean, intermediate, and dirty areas were related to the death rates from pneumonia, pulmonary tuberculosis, and respiratory tract cancer. It was concluded that differences in the death rates from these diseases were due to air pollution even though dustfall measures preponderantly coarse particles which are effectively excluded by the nasal and oral passages and therefore do not enter the lungs. Other factors were also ignored.

If one may be permitted to reason by analogy with the known behavior of plant and animal life to chemically active air pollutants, then it is possible to postulate the existence of effects on the living organism corresponding to acute and chronic injury, as well as a third condition in which the degree of concentration and exposure is below the threshold limit for injury.[6, 19, 20] Acute effects on man have been demonstrated. Chronic injury to health from long-continued exposure has been proved only in the case of industrial workers subjected to individual pollutants at concentrations which are considerably higher than those occurring normally in urban and industrial communities. Indirect methods of approach have failed to provide satisfactory evidence. A direct answer can only be obtained by careful experimentation with mixtures of gases and vapors, or gases and aerosols, in appropriate long-term exposures in the range of concentration prevailing in community atmospheres; or by adequate epidemiologic or chemical studies of carefully matched groups of the population under known atmospheric conditions.

At the present time our knowledge of chronic effects of human exposure to irritants and other toxic materials in the atmosphere is based almost entirely on industrial medical experience.[1, p. 476] No doubt, chronic injury could be demonstrated more readily by studies of the

distressed portion of a population group, those with functional disturbances or diseases of the respiratory or cardiovascular system. Within recent years, widespread publicity has been given to the symptoms of eye irritation and other aspects of the Los Angeles air pollution problem.[22] These symptoms of irritation to the eyes and respiratory system accompany exposure to periods of severe smog not only in Los Angeles but elsewhere. It cannot be said that such conditions do not detract from the sense of well-being of exposed people and thus represent a violation of the broad concept of public health.

Detroit River Area Health Study *

The problem of air pollution in the highly industrialized Detroit River area, which includes the cities of Detroit, Windsor, and smaller municipalities, was referred to the International Joint Commission of the United States and Canada for study in January, 1949, following the receipt of complaints. The terms of the reference were broad in scope and required an answer to such questions as to the detrimental effects, if any, on public health and welfare and on property interests on either side of the international boundary from impurities discharged to the air from major sources of pollution, including excessive smoke from the large volume of Great Lakes vessel traffic on the river.

The first step consisted in the selection of high and low pollution areas by means of environmental sampling technic. In 1951, 32 sampling stations for the continuous determination of suspended particulate matter were established in 28 census tracts in Detroit. Daily measurements were made of the total weight of particulates collected on accordion-pleated filters in high volume samplers which filtered the air at a measured rate of about 50 cubic feet per minute.[24] The study was continued for six weeks to determine the level of pollution at each location. Subsequently, a similar survey was conducted at 25 sampling stations on an area-wide or network basis in the smaller city of Windsor. In addition to total weight of particulates, a large number of samples from each location were analyzed for silicon, calcium, aluminum, iron, magnesium, lead, manganese, copper, zinc, titanium, tin, molybdenum, barium, nickel, vanadium, chromium, cadmium, beryllium, antimony, and cobalt—listed approximately in decreasing order of concentration on the basis of median weights. Maximum concentrations for the most abundant elements ranged from about 20 to 38 μg. per cubic meter of air down to less than about 0.1 for the last five elements mentioned.

On the basis of the collected data, high and low pollution areas were selected in Detroit and Windsor containing well defined population groups matched according to socioeconomic status and other factors in so far as possible. There were four areas in Detroit, consisting of high and low pollution districts with white populations and similar pollution districts with Negro populations. In Windsor two areas consisting of white populations in high and low pollution districts were matched. Prior to the start of the morbidity study, a survey of pollution was made in a number of localities up to about 40 miles distant from the Detroit River industrial area on the Canadian side and two towns containing no heavy industry or contamination from vessel smoke were selected as a control area. The initial study, which may be considered a pilot study, was planned to include approximately 500 households in Detroit and 600 on the Canadian side.

By the fall of 1952 plans had been developed sufficiently to undertake the

* For additional information regarding this investigation see references 4, 5, 7, 12–14, and 24.

preparation of forms and procedures for this study. The initial objective was to obtain information on the incidence of symptoms and sicknesses among individuals of the households in the various study areas. A number of trained enumerators were selected for each area and each enumerator was assigned a definite number of households for regular visits at two-week intervals to collect the required data on sickness experience. Three types of information are required: (1) a household record of general family and environmental data, including occupation and income levels; (2) a record of present health status and conditions prior to the initiation of the study, using a modification of the Cornell Medical Index; and (3) current sickness data on individuals in the high and low pollution and control areas, including symptoms during periods of excessive air pollution or unusual meteorological conditions.

Early in 1953 a pretest was made in field trials of forms and technics over a two-month period to determine the best approach to elicit the information required above. An individual health questionnaire containing 78 questions was prepared as a modification of the Cornell Medical Index, and a household record card similar to that used in industrial and public health practice was also devised. Enumerators and supervisors were trained in the proper use of these forms.

The health study was commenced in the late summer of 1953 and has been under way since that date. The health records of the first year in relation to the environment in all study areas are being assessed by a small group of experts. A review is also being made of available health data in the Detroit River area. The Detroit Health Department has collected data on the distribution and incidence of such diseases as tuberculosis, pneumonia, and cancer which may be of value if applicable to the selected health study areas. The city of Windsor has made a study of general health and medical care records covering a considerable part of the population are also available.

Summary

With the growth of population and industry, air pollution problems have become more numerous and present an increasing hazard to public health. Our knowledge of the chronic effects is too meager to justify a complacent attitude. Although great advances have been made in the last five years in the development of instruments and technics for the measurement of various air contaminants, there has been little, if any, progress in the elucidation of the causes of acute symptoms leading to fatal effects in air pollution disasters. Progress in evaluating the extent of chronic effects or in proving the existence of this type of injury to health in industrial communities has been virtually nil. Our experience is still confined to indoor exposures in industrial atmospheres, occupational diseases, and knowledge acquired in industrial hygiene and medical practice.

The Detroit River area health study represents a scientific attempt to determine the effects of prolonged exposure to such contaminants as occur in the atmosphere of a highly industrialized region. The approach is not a rigid one and methods will be improved as dictated by experience. The findings will be of value to other industrial communities and provide guidance to those who are able to undertake elsewhere similar investigations in the field of public health.

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World Health Day, April 7

The eighth annual World Health Day on April 7 will be devoted to underlining the importance of safe water for health and WHO's concern to strengthen environmental sanitation programs. The theme is "Clean Water Means Better Health." Professional and technical societies and journals as well as citizen groups are urged to share in developing World Health Day observance in order to foster and support efforts to obtain and protect clean water.

A packet of source material discussing the importance of water supplies is available from WHO. Included is the latest WHO Newsletter devoted entirely to the subject of "Clean Water Means Better Health." Included also are messages from the director general of WHO, Dr. M. G. Candau, and the director general of the Food and Agricultural Organization.

The 14 pieces in the packet include historical and esoteric material such as Abel Wolman's bird's-eye summary of 4,000 years of struggle to keep water pure. Problems of rapid growth of cities as in Chicago, the vast industrial uses of water, the extent to which man has "turned rain to poison"—these are other items in the kit. There is a wealth of material for the use of varied types of journals.

The kit is available in limited quantities from the Regional Office of the Americas, 1515 New Hampshire Ave., N.W., Washington, D. C., or from United Nations, New York, N. Y. It is expected that local areas will reproduce the items and add others suitable for the area.

New Horizons in Education of the Handicapped Child

WILLIAM M. CRUICKSHANK, Ph.D.

Is it a sign of professional maturity when public health people look with interest upon activities that superficially seem to be only distantly related to the immediate concerns of public health practice? This discussion of the education of exceptional children is probably much closer to current public health programs than the topic would indicate.

Education and social planning for exceptional children are not new. Since 1817 somewhat ineffective programs have been in existence primarily directed at custody and care rather than education. This has been the large program of the residential schools which has for the most part been conservative and has held to a fixed line rather than being dynamic and sensitive to the changing needs of a society in ferment and democratic in its essence. Democracy, in so far as exceptional children and minority groups are concerned, was not so much a fact as it was a long hoped for ideal. In more recent times the attitude of society has slowly changed in its conception of the handicapped child and adult. Science has fostered this new point of view. The labors of humanitarians have molded popular thought and state legislatures have reflected these new attitudes in their enactments.

Left behind, for the most part, is the mysticism surrounding the deaf and the blind, the repulsiveness of the cripple, the idea of absolute valuelessness of the child with retarded mental development, and the fatalistic notions concerning juvenile delinquents. Society is now generally coming to realize the potential usefulness of the mentally retarded. Vast steps are being taken in the education of the deaf and blind. Slowly the community is being convinced of the possibility of rehabilitating the juvenile delinquent through education, psychotherapy, and understanding care. Medical and allied medical research is pointing the way to new and improved methods of diagnosing, treating, and rehabilitating orthopedically and neurologically handicapped persons who in large degree may make contributions to society and to their communities.

Social development within this society and that of several other countries has progressed to the point where the principle of social equality is placed more nearly in harmony with that of individual difference. While there remain many individuals and many groups who would disagree with this statement, nevertheless, it appears that the truth of these two great principles is accepted by the majority of a maturing society. Poliomyelitis and the presidency of the United States are an accepted fact. Walter O. Briggs and his wheel chair were an accustomed sight in the City of Detroit. Bernard Baruch with his hearing aid is accepted for what he can contribute to American life with or without a mechanical instrument. One of the leading authorities in the United States on epilepsy is himself an epileptic. Earl Carlson, a surgeon, is recognized as a specialist in cerebral palsy. He is

cerebral palsied. These are the great. More important are the thousands in wheel chairs who have not reached the eminence of a Briggs; the thousands with poliomyelitis who have not become presidents; the epileptics who have not become neurologists. The important group is that great number of handicapped people of little note who have likewise become accepted as potentially contributing members of their communities. As we look ahead to the continued nurture of these later attitudes we see immediately in front of us five major trends that are basic and important to the further development of this important phase of education. The first of these is early discovery and early admission to an educational program.

In 1954 the New York State Commission for the Blind became aware of the more than 200 preschool blind children west of the Hudson River in New York State. In 1948, in three school districts of Onondaga County, social agencies and others became aware of 323 preschool exceptional children. It is essential that the local community and the state immediately recognize their responsibilities to provide adequate educational and therapeutic programs for exceptional children at an age when they need them, regardless of chronological age. Further, to exclude educable mentally retarded children from the school until they have reached a mental age of four years and six months, as is prescribed in many local school regulations, is to operate against the child and his family rather than in his interest. Not to provide at community expense educational facilities for the preschool deafened child is to retard his psychological development to an unknown degree. For the community not to provide rich therapeutic and educational facilities for the preschool blind, the cerebral palsied, or other groups of handicapped children is to prevent certain of these children from ever participating in the community as contributing adult citizens. The downward extension of the legal chronological and mental age for admission to public educational programs is an absolute essential for a large percentage of our child population. The community and the state are remiss when this challenge is not accepted. Not to meet the challenge is to produce significantly greater problems for the community and significantly larger financial burdens later during the life span of such children. Several states have already taken action which insures that educational opportunities will be available when the child needs them.

The State of Colorado has established the lower limit for exceptional children at three years of age. Michigan has no lower age level specified, but leaves it to the discretion of the school authorities. Minnesota provides for children "over four years of age," while the State of Oregon provides education for exceptional "preschool children approved by the superintendent of public instruction." Similar action on the part of the remaining states will mean that exceptional children will have much greater opportunity of functioning as self-supporting adult citizens.

A second major development in the present and for the future revolves around the concept of integration of the handicapped with the nonhandicapped. The program must be solved differently in accordance with the specific issue. The great majority of children with physical disabilities of all types can and should be made a part of regular class instruction in the schools. We do not

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Dr. Cruickshank is director of education for exceptional children, Syracuse University School of Education, Syracuse, N. Y.

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mean to go so far as to say there is nothing special about special education. We do mean to say that there are few, if any, adjustments which need to be made in the curriculum of an elementary or secondary school for approximately two-thirds of the physically handicapped children of the nation. There is no special method of teaching reading to the child with poliomyelitis. There is no special method of teaching number concepts to the cardiac which is not also applicable to all other children. Social studies and language arts for the child with a club-foot are the same as those for the child not so characterized. Cannot these children then be integrated into the normal social and educational functions of a typical American school? Must they, because they carry a cane, or walk with the aid of a crutch, or ride in a wheel chair, spend their formative years in isolation in special classes or schools where at best, because of the limited number of children, programs are frequently not so rich as for non-handicapped children?

An emerging tenet with regard to the exceptional child thus is that whenever possible he shall be integrated into the regular educational stream of the school system. It is most interesting in this regard to see the recent attitude of the National Society for the Prevention of Blindness which fostered in its early history the development of sight conservation classes. Recently, however, this organization has taken a most important stand, in the light of scientific developments, urging that the education of children with partial vision be incorporated into the majority of regular classes throughout the United States. During a 10-year period, they state, the number of children enrolled in special classes for the partially seeing has decreased gradually and steadily so that in 1951 there were more than a thousand fewer classes than in 1940. I doubt that there is even an "educational salutory effect" of the sight-saving class. We have little research which would support this, if it is true. The trend is still downward in most sections of the country. Why? Principally because parents, opthalmologists, social workers, and others are concerned with the total health and education of the partially-seeing child and will not support programs which necessitate segregation or which stigmatize the child. It is interesting to note in this connection that leadership toward complete or partial integration has come, not from educators, but from professional groups outside of education.

It is the feeling of some educators that certainly with the hard of hearing and even with the deaf, much greater if not total integration can be effected. Epileptic children, who are under medication and with seizures under relatively successful control, likewise, are having rich educational experiences in normal groups of children in many communities of the nation. This does not mean that we will abandon the specially trained teacher; it means that we may use her differently. She will be employed as an itinerant consultant-teacher in many instances serving both the exceptional children in the regular grade and the teacher of that regular grade to the end that both may work together in greater harmony.

It must not be concluded that no programs exist today. They are far in the minority, however. Outstanding examples of integrated programs are to be found in the Central School of Mohawk, N. Y., the Harvey Lowry School, Dearborn, Mich., and the Ann J. Kellogg School, Battle Creek, Mich. There are only a few other examples of integration to add to this short list, for the special class has become the mode of operation. Frequently it is the easiest plan. It is the plan of an overcautious profession. Integration calls for aggressive initiative, continuous planning, experimentation, and active seeking for

solutions to continuously differing problems.

We have emphasized integration. Such a program itself is based upon certain requisites. Integration calls for complete assessment of the child. Adequately prepared general teachers, personnel, and facilities for such assessment must be available. Integration calls for small classes. Teachers cannot accept an exceptional child, or any child, in classes of 40 youngsters. Integration calls for the application to total educational programs of those concepts considered important to special education. If good lighting is necessary to the sight-saving class, good lighting is essential to all.

The concept of integration is not the total solution to the problem. There are some severely handicapped children who will need the special class. Children who have multiple handicaps will also frequently need a special class. Where mental retardation is found in combination with deafness, blindness, crippling conditions, or where other serious combinations of disabilities are present, special class placement is mandatory. By removing many physically handicapped children who do not need the special class, a considerable number of children who are now isolated in home teaching situations can be brought into richer social experiences. The special class should be reserved for the child who truly needs such a facility. For many years there will be an inevitable need for a smaller number of special classes for children with severe physical handicaps.

It is apparent that we have discussed only the physically handicapped child in this regard. The special class is an essential part of the educational program for the child with retarded mental development. These children whose reading readiness age is reached much later chronologically than with normal children, whose rate of academic progress has been determined to be approximately 0.4 grades per year rather than 1.0 grades per year, whose ultimate achievement is a high fourth- or low fifth-grade level, whose occupational outlets are essentially different from those of children with normal intelligence—these children require a special class program. Such a program, however, cannot be the traditional custodial program, busy work, or watered-down educational offering. An honest program is never a punishment to a teacher. It must be a developmental program, different from that provided for normal children, in keeping with the retarded child's occupational and social needs as a retarded adult. The factor of a special class program need not result in complete isolation for these children. Integration of these special classes into the total school program should be the aim of every good administrator in so far as it is educationally possible.

A third and fourth factor mentioned only briefly are closely interrelated. Such are the need for honest diagnosis and honest prognosis on the one hand and continuous guidance and parent education on the other hand. The parent and the home are undoubtedly keystones to a total program of successful adjustment of the handicapped in any community. The type of information which is given parents of exceptional children by psychologists, educators, and medical personnel is often unrealistic, not pertinent to the basic issue, avoidant, and sometimes actually dishonest. Over and over again, parents have stated or written that a teacher, a family physician, or other professional person has said to them, "Don't worry, Mrs. Jones, when John is sixteen years old you'll never be able to tell him from any other boy on the street." This is not true, and it serves only to delude the family. Professional people must be honest with parents. It is the obligation of the professional person to ascer-

tain the level of insight of the parents and then to provide the family with accurate and honest information to the extent that it can be intellectually and emotionally accepted. As parent guidance and education continues, more and more information must be given the parent until the full picture has been placed before him. Parent counseling is not a matter of a single contact. It is a matter sometimes of long months and years of careful nurture.

The role of the parent cannot be too greatly stressed. To assume that lay people without planned programs and with little or no experience in rearing children will have insight into normal growth and development patterns is naive. To assume that parents, involved in the emotional problems of accepting a physical disability, will be able independently to gain insight into the relationships between normal growth and development and the impact of a physical or mental disability on such growth is to be more than naive. Some parents will be able to effect such an understanding independent of professional assistance, but these parents are in the minority. A carefully planned program of continuous parent education must be developed. Such a parent education program should stress (1) the normal developmental patterns of young children and (2) should help parents to see how their physically handicapped child approximates the normal rate of growth and development. The importance of both formal and informal education programs for parents cannot be overstressed.

Frequently parents of handicapped children are exposed to highly technical concepts of an orthopedic, pediatric, psychological, or therapeutic nature which they are emotionally unable to accept. The typical procedure of arranging a series of talks by the medical staff, the therapy staff, and clinic consultants may be interesting and is undoubtedly helpful to the ego of the staff members, but it accomplishes very little in terms of the kind of parent understanding which is really needed. The approach which we are criticizing is perhaps important. Its importance will be more readily realized and accepted if technical materials can be made available to parents after they have come to the point where they can freely express feelings about their child and after they have been given insight into the many practical but simple things which can be done for their child in the home and in the neighborhood. These basic needs are being widely recognized and are definitely a part of the new education for exceptional children.

The final factor to be mentioned in this brief treatment of new and important trends in the education of the handicapped child is that of teacher preparation. The adequacy of the preparation of teachers is the key which will open or close the door on successful adjustment and community living for thousands of exceptional children. There is an important study on the Qualifications and Preparation of Professional Personnel in the Area of Special Education now under way in the Office of Education of the Department of Health, Education, and Welfare which has been made possible through funds from the Association for the Aid of Crippled Children of New York City. Many of us are taking an active part in this significant study. If all goes well, the study should present to educators of teachers of exceptional children, for the first time, the essential competences with which new teachers should be equipped upon graduation.

Teacher preparation for special education, except in a few limited instances, began in 1920. In 1948, 175 collegiate institutions reported one or more courses in this area—an increase of 73 per cent since 1946 and an increase of 146 per cent since 1931. These figures

give unmistakable evidence of the mounting importance of the field, but it may also be cause for concern. It is literally impossible for 175 institutions in the United States to prepare teachers of exceptional children adequately. To prepare teachers of exceptional children and to offer curriculums to this end implies that the college or university will employ adequately equipped university personnel and will finance the program adequately. Further, because of the expense of special education preparation, it is difficult to see how 175 or more institutions can possibly adequately sponsor even a minimal program of teacher preparation with the exceedingly limited enrollments which these programs have had and which they now have. Graduates of programs without adequate laboratory facilities, with minimal staff, or part-time staff, with extremely limited numbers of exceptional children for study cannot help but be prepared at a minimal level. These teachers will, however, be active to greater or lesser degree in the teaching profession for a long time.

Special education can ill-afford any but the best representatives. Sufficient knowledge of our own fields and of the direction which they should take might have avoided some of the drastic retrenchment which occurred in the thirties. Without such agreement on direction our professional group can hardly survive the long pull.

An orientation of all educational personnel to the needs of the handicapped or exceptional children is another and important aspect of the training process. If administrators, nurses, guidance personnel, teachers, and janitors cannot accept the handicapped child, then the educational program is, in part, deficient and inefficient.

Regional schools for teacher preparation in special education should immediately be developed. There is no logic which demands that every state have its own teacher-preparation center in this field. There is no logic which demands that a given teacher-preparation center should serve the needs of teachers of all types of exceptional children. When we can present a profession which sponsors only programs of teacher preparation worthy of the name, when we can insure the graduation of outstanding types of teachers, we shall have a tool in our possession capable of withstanding the efforts of those who attack the freedom of knowledge from within America and without. Only then can we offer exceptional children the type of teaching which is their birthright.

. . . Human needs are vast and foundation funds are a tiny pool compared to them. Those responsible for the use of such funds would not claim that they always find the "right" answers, for each grant must, in a sense, compete with every other possible use of the same money. But on one point foundations would generally agree—philanthropy can fluorish only in the air of freedom.

(From: Statement of the Rockefeller Foundation and the General Education Board before the Special Committee to Investigate Tax Exempt Foundations, House of Representatives—83rd Congress.)

Effects of Routine Immunization of Children with Triple Vaccine (Diphtheria–Tetanus–Pertussis)

JOHANNES IPSEN, M.D., F.A.P.H.A., and HARRY E. BOWEN, Ph.D.

When important developments in immunology are in the headlines of popular and scientific news, it becomes appropriate to take stock of immunization programs so familiar to health department staffs that their past history is largely forgotten. Knowledge of the effect of a common prophylactic, triple vaccine against diphtheria, tetanus, and whooping cough may help to form expectancies of future uses of other and newer vaccines.

Evaluation of the effect of an immunizing agent occurs by way of a number of test stages each with a particular purpose and all contributing to the total evaluation: (1) animal tests, (2) tests on human volunteers, (3) the field assay, and (4) use in public health.

The first two are usually conducted solely by the laboratory that produces the prophylactic. Antigenicity in animals is evaluated by the measurement of antibody and protection against the disease produced in animals. Tests on human volunteers (perhaps starting with enthusiastic staff members) elucidate antibody response in man and evaluate the harmful side effects of the agent. The field trial is a novelty created by modern statistical thought. It is the effort of a team of specialists, involving a circumscribed population. The measurement of effect is the incidence of naturally occurring disease in two matched groups, vaccinated and nonvaccinated.

The fourth stage, general use in public health, lacks the criteria for strict scientific inference and yet it is the final and severest test for a product. The field trial is expensive, but yields immediate answers, if well designed. The measurements of achievements after general use are derived on a long-term basis. Time is required to allow incidental fluctuations of many variables to cancel out, but given time valid conclusions are possible.

Diphtheria and tetanus toxoids came into general use without field trials; first, because the concept had not been formed, and second, because antitoxin measurements and Schick tests were considered unique measurements of immunity to infection. Field trials were essential to prove the efficiency of pertussis vaccine, since the validity of laboratory assays of pertussis were doubtful. These trials served as the first models for other agents. The British field trials are still in progress, whereas the vaccine in the last decade has come into general use in American public health. Typhoid vaccine, although half a century old, still awaits its field trial.

Evaluating Effects of General Use in Public Health

In evaluating the effect of the triple vaccine, after some years of general use in Massachusetts, there are several questions to be answered. For diphtheria, what is the long-term effect of

vaccination, other than decrease in incidence? For tetanus, can the effect which was so striking in military personnel in World War II be duplicated in a civilian population? And for pertussis, when will the effect that was demonstrable in controlled field trials be apparent in the general population?

Since the subject of this report is of effects in the population following the assumed general use of a prophylactic, it is pertinent to define what these effects might be. There would be an immediate increase in the number of persons immunized as a direct result of the program. Indirectly, however, the reservoir of disease may be reduced markedly resulting in a decrease in the numbers naturally immunized by exposure. An effective immunization program would eventually lower the incidence of disease, especially in those segments of the population most directly concerned in immunization. While the field trial compares contemporary incidence in the immunized and the nonimmunized group, this evaluation is based on comparison of trends in immunized and nonimmunized age groups.

Certain undesirable effects may also be important. Allergic reactions may develop. They may be directed specifically against the protective antigen, or against associated antigens,[1] or even the preservative. We are all familiar with the frequent and severe reactions in adults indiscriminately given full-strength diphtheria toxoid. More recent knowledge is that crude tetanus toxoids may cause an undesired rise in anti-A immune bodies in persons of blood type O.

These are all tangible effects subject to ready quantitation. One might also add, however, that the extended use of a particular product may hide the clinical knowledge and recognition of an apparently vanished disease. At the same time a successful immunization program over many years prepares fertile soil for other programs. The public can most easily be convinced to accept a new program when the public health practitioner can point to the obvious success of a familiar one.

Methods

We have studied the reported incidence of disease and done serologic studies on random segments of the population and will attempt to interpret these findings with respect to past performance and possible future needs of DTP.

Incidence of disease in Massachusetts was taken directly from official reports of the Department of Public Health. Age-specific data were supplied through the courtesy of the Division of Communicable Disease Control. For estimating the present status of immunity among adults, blood samples sent to the Wassermann Laboratory were used. These were selected in representative numbers of each age group and sex after completion of the serologic test for syphilis. Titrations were also performed on the first- to third-grade school children using bloods taken in conjunction with the current poliomyelitis vaccine trials. They represent 15 bloods from each of 25 towns in the state.

Serologic investigations were performed for both tetanus and diphtheria antitoxin.* Tetanus antitoxin was measured in mice testing for 0.0025, 0.025, 0.25, and 2.5 units. Diphtheria

* The trials were conducted under the sponsorship of the Commission on Immunization, U. S. Armed Forces Epidemiological Board, and were supported in part under contract with the Office of the Surgeon General, Department of the Army.

The authors are associated with the Biologic Laboratories, Institute of Laboratories, Massachusetts Department of Public Health, and the Harvard School of Public Health, Boston, Mass.

This paper was presented before a Joint Session of the Epidemiology and Laboratory Sections of the American Public Health Association at the Eighty-second Annual Meeting, Buffalo, N. Y., October 14, 1954.

antitoxin was titrated by the rabbit intracutaneous method testing for 0.001, 0.01, 0.1, and 1.0 units. Titrations for both antitoxins were performed on the same sera, using the same tenfold dilutions of serum for both titrations.

Incidence of Disease *

Diphtheria—Reported cases of diphtheria in Massachusetts show a decrease in the total annual cases from around 8,000 in the early 1920's (when toxin-antitoxin immunization was started) to only 31 cases in 1953. The continued downward trend was interrupted by a flare-up from 1946 to 1949 with 300–400 cases annually. Childhood immunization has been intensified since 1949, especially with the introduction of triple vaccine.

Decrease in cases, deaths, and case fatality is not nearly as pronounced in adults as in children. Although adult cases have dropped fourfold from the previous decades to the last decade, deaths have decreased but slightly, and an ominous rise in adult case fatality is noted. The latter is understandable, if the very high fatality of about 50 per cent in the ages over 60 is remembered. For those under 15 the case fatality rate, which was high in the early 1920's, has dropped steadily until the present. In contrast, for higher age groups case fatalities began to decrease, but have taken a sharp rise in the last decade. Late years have shown a conspicuous number of diphtheria cases in old people.

While the decrease in children may be ascribed to immunization, the decrease in adults is mainly due to an almost complete disappearance of the reservoir of disease in children. Without this reservoir adult immunity is not stimulated and diphtheria will become mainly a problem of adults.

Tetanus—Although the disease is rare, tetanus is reported frequently enough that some information can be had from a study of the incidence over a number of years. The annual incidence of tetanus over the last 22 years was 0.35 per 100,000, the highest frequency being in the age group from five to nine years (1.32 per 100,000) and in children from zero to four years (0.61 per 100,000).

A noteworthy decrease is seen in the latter group where no cases have occurred in the four years since 1949. There is also some decrease in the five- to nine-year age group with no cases reported in 1953. The decrease among adults in the 20- to 39-year group was noted in the early 1940's. But cases in people over 40 years continue to occur with the same frequency as in earlier decades.

The trends permit the inference that the rate of decrease in each group is proportional to the extent of tetanus immunization among persons of that age. With continued immunization of children tetanus will remain a disease of adults only, particularly of women and older people. Prophylactic tetanus serum will continue to exert some control, but it must always be kept in mind that half the tetanus cases arise with no conspicuous injury that motivates serum injection.

Pertussis—The incidence of pertussis has remained fairly uniform for the last 30 years in the 10- to 14-age group (Figure 1). In sharp contrast, both the groups from zero to four and five to nine years show a marked drop beginning around 1942 and progressing until the present time. Pertussis vaccine (in the form of DTP) was first distributed by the state in 1949, although commercial vaccine was in fairly wide use as early as 1940.

The decline in incidence in the below 10-year age groups is shown more clearly in Figure 2 where the incidence

* Detailed data on diphtheria and tetanus were recently reported by one of us.[5, 6]

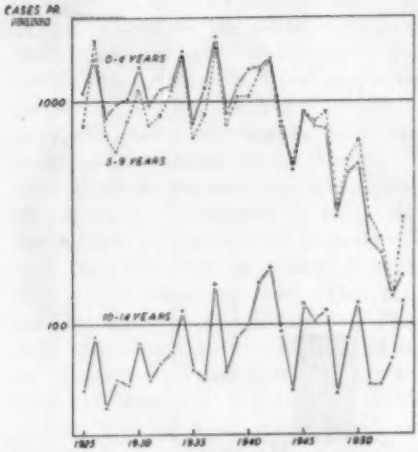

Figure 1—Whooping Cough Trends in Age-Specific Attack Rates, Massachusetts, 1925–1954.

is plotted in multiples of the attack rate in the over 10-year age group. While the ratio was 20 times greater in 1925, it is approaching unity today. Within the next few years, continued use of pertussis vaccine in preschool children will continue the downward trend for children under 10. As the children now below 10 move up into the older group, pertussis can be expected to become less frequent in that group as well. As is now the case with diphtheria, pertussis may soon become largely a problem among adults.

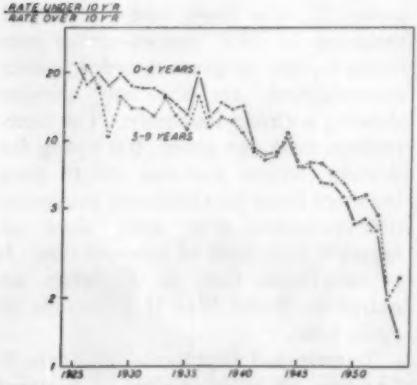

Figure 2—Whooping Cough Age-Specific Attack Ratio in Children under 10 Years in Multipla of Those for Children Aged 10–14. Massachusetts, 1925–1954.

Serologic Studies

Diphtheria — The immune status, based upon diphtheria antitoxin determinations of 375 first- to third-grade children and 349 adults (Wassermann specimens), is shown in Figure 3. As

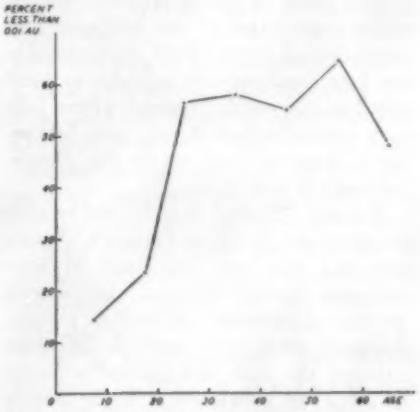

Figure 3—Diphtheria Immunity Status. Massachusetts, 1954.

many other workers have observed recently, the number of susceptibles in the adult population is high, over 55 per cent in persons over 20 in this case. The picture is essentially the same for both males and females. The graph is the mirror image of what could be found 30 years ago with high susceptibility in children and low in adults.

The serologic epidemiology of diphtheria is a complex situation to analyze. Reservoir of disease rests in the human population. By applying a program of active immunization in children the public health practitioner first brings about an increase in the number of im-

mune individuals. At the same time, the reservoir of disease is controlled to the point where relatively little is accomplished by way of natural immunization. These points are illustrated in the present data. Active (artificial) immunization in childhood has achieved a very high rate of immunity among the lower age groups, but elimination of the natural reservoir in children has destroyed the possibility of natural immunization of the adult population inducing a high susceptibility rate there.

This same feature is well illustrated in the data of Liao [4] who found the highest rates of Schick-positives among military personnel of our northeast and north central states where immunization has long been pursued actively, as compared to the southern states where full-scale immunization is only now becoming widespread and where the disease reservoir is still large.

Tetanus—Similar data for the tetanus titrations are shown in Figure 4. Again, one sees the very low level of non-immunes among children. In contrast to the diphtheria immunity picture, however, there is a marked difference between the male and female segments of the adult population. While women from 20 to 60 show a uniformly low rate of immunity, the men of age 30–40

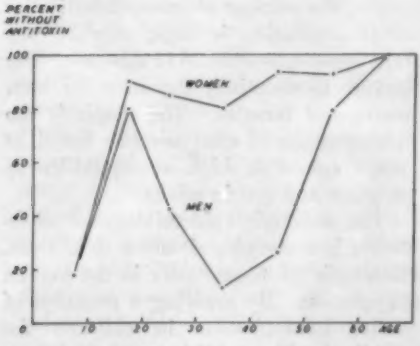

Figure 4—Tetanus Immunity Status by Sex. Massachusetts, 1954.

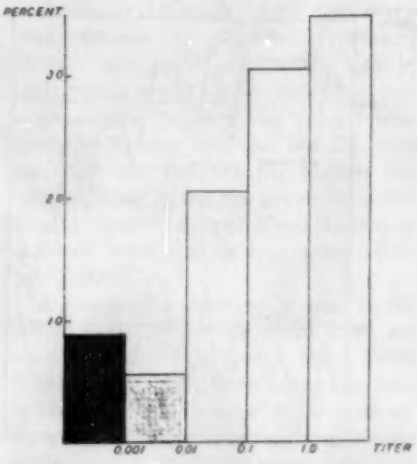

Figure 5—Percentage Distribution of Diphtheria Titers Among First- to Third-Grade School Children, Massachusetts, 1954.

show protective levels comparable to the children.

The serologic picture here is much less complex than in the case of diphtheria. Since the reservoir of infection of tetanus is in soil and excrement, with no latent infections, immunity in the population may be attributed entirely to artificial immunization. Thus, children under 10, who have been the largest recipients of DTP, and ex-service men whose regular program included tetanus immunization, are the only persons showing a strong immunity. The intermediate male age group, too young for military service and too old to have benefited from the childhood immunization programs now used, show an expected high level of susceptibility. It is remarkable that the immunity acquired in World War II still holds 10 years later.

Tetanus and Diphtheria Antitoxin in Children—It is of interest to compare the tetanus and diphtheria titers of the first- to third-grade group in more detail. The diphtheria results, grouped according to antitoxin levels, are seen

in Figure 5. Only 14 per cent have less than a protective titer (0.01 u is generally construed as corresponding to the Schick level) and only 8 per cent have no detectable titer. Note the relatively large numbers of intermediate responses. The tetanus results (Figure 6) show about 18 per cent with no detectable immunity. Compared to the diphtheria titers we note an "all or nothing" type response—that is, either a high titer or no detectable titer. One can only speculate on this difference. Perhaps, the tetanus antigen is so good as an immunizing agent that it tends to elicit the maximum response in those persons who are given a course of injections and who are capable of responding. Or the small reservoir of diphtheria may provide sufficient stimulus to induce a weak antitoxin response in individuals who would not normally respond well to routine artificial immunization alone.

Regression analysis reveals the two titers to be correlated, suggesting that a multiple antigen (probably DTP) was the usual source of immunity for these children. The differences between towns are statistically significant in respect to tetanus antitoxin, but the order of difference is so small that they confirm the original premise that multiple antigens have been in general use in Massachusetts.

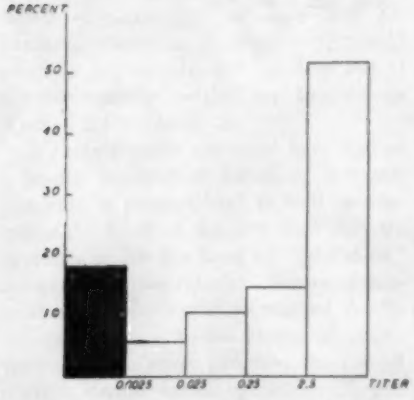

Figure 6—Percentage Distribution of Tetanus Titers among First- to Third-Grade School Children, Massachusetts, 1954.

Discussion

We have presented data on the incidence of disease and serologic epidemiology in pertussis, diphtheria, and tetanus as a measure of the past performance of DTP in Massachusetts. Incidence of disease can only be used with confidence in a situation where the immunization program is building up and where the incidence of disease is sufficiently high. As we have shown, the attack rate of pertussis began falling around 1943 among children under 10; it has not yet begun to affect the rate for those over 10. Here we have an excellent demonstration of the performance of pertussis vaccine which was coming into general use in Massachusetts around 1940 and the use of which is still increasing as is seen in the distribution figures of the Biologic Laboratories.

The incidence of disease in diphtheria (31 cases in 1953) is so low as to suggest the erroneous conclusion that the population is protected. In actuality, as the serologic data indicate, the adult population is very poorly protected. The incidence of disease is low simply because the organism is no longer with us. A fine epidemic potential exists, needing only the introduction of the virulent organism to cause its inception. Essentially the same situation existed in northern Europe where widespread diphtheria epidemics occurred toward the end of World War II.[5] In the case of an infectious disease controlled by immunization, such as diphtheria, morbidity figures may give a distinctly wrong impression of the population's safety with regard to potential infection.

In tetanus, with its simple epidemiol-

ogy, morbidity figures may be interpreted directly. The naturally low incidence of infection, however, makes study of the incidence of such diseases unsatisfactory.

We have attempted to apply serologic epidemiology to interpret the past performance of programs of prophylactic immunization. Unlike other parameters, the serologic data give a direct measure of the population's potential resistance to a given disease. As such, it is not subject to the distorting effects encountered in attempting to evaluate morbidity in an infectious disease. Furthermore, serologic epidemiology can readily be used to evaluate proposed future programs of immunization. For example, on the basis of the data presented, certain immunization programs might be indicated in anticipation of the possible future course of the diseases studied here:

Encourage immunization of adults against diphtheria. (This is now being approached by the Massachusetts Department of Public Health through the distribution of diphtheria-tetanus toxoid for adult use. Its feature is a 2 Lf/ml. strength of diphtheria which can be used safely in adults without prior testing for sensitivity.)

Encourage active immunization of adults, especially women, against tetanus.

Booster shots of pertussis vaccine for high school children to maintain the immunity provided by preschool immunization is a problem of the very near future.

In conclusion, we would like again to emphasize the potential usefulness of serologic epidemiology. It has hitherto been used to study the natural history of disease. Using it to measure public health programs is a new and promising application.

NOTE: Because of space limitations, the author's tables have been omitted from the text. They will be furnished to interested readers upon request to the Institute of Laboratories, 375 South Street, Jamaica Plain 30, Mass.

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Educational Technics Useful in the Promotion of Dental Health

H. SHIRLEY DWYER, D.D.S., F.A.P.H.A.

As its title indicates this free-ranging discussion is concerned with ways to encourage dental health, but the means employed—and the critical appraisal of the employed means—are related equally to promotional measures in many another area of public health practice.

Just a few years ago at a public health meeting we were decrying the fact that an otherwise excellent dental program failed to take advantage of the learning situations which it developed. Educational opportunities were being completely ignored. When this was pointed out a participant in that program scoffed and commented, "Hot air never filled a tooth."

Perhaps that expression, "hot air," sums up the understanding of the individual who used it. He is not alone in this miscomprehension. Many of us in health departments, although not expressing ourselves in that way, would seem to indicate in our careless use of the term education that we, too, are in need of a little help.

We might point out right here that as a health department function, a dental program is promotional as well as educational. Most of the activities that we perform under the head of "education" are actually promotional. We must promote our program if we expect public recognition of it to the extent of public support. We must promote the use of correct dental health practices if our program is to be anything but an emergency care type. Whether we admit it or not, we are far closer to the executive in industry promoting a sales program than we are to a fundamental educational program. However, in our promotional efforts we do use educational technics. Also, there are times when we are able to stimulate some real educational programs.

For a strictly educational program we should and must look to the Department of Education and its specialists in pedogogical methodology. We may be experts in the field of administration, or medicine, or dentistry, but we are going quite a way afield when we try to conduct an educational program without proper assistance and advice from those trained in this work. Incidentally, such training should lead to far more than a familiarity with audiovisual teaching devices—and a superior attitude.

Now that we have whittled ourselves down to size, let us consider a truly fundamental educational dental program that was conducted a number of years ago, but is still one of the outstanding programs in dental health. It was an experimental teaching project paid for by the Good Teeth Council and locally sponsored by the Oral Hygiene Committee of Greater New York. It was conducted by a well trained educator and dentally guided by an experienced dental coordinator.

Dr. Dwyer is director, Division of Dental Hygiene, and of the Division of Health Education, Arkansas State Board of Health, Little Rock, Ark.

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A glance at some of the books used by almost any grade will show that many educators have taken advantage of the natural love of a child for an animal to teach spelling, language, and even arithmetic. Why not learn about teeth in this same pleasant way? It was not long before children—yes, even kindergarten children—were getting excited about Buttons, the pig, and in their labored lettering, the little first graders were telling us that "He has cutting, tearing, and grinding teeth." Do we have teeth like our friend Buttons? Where are they, what are their names, and what should we do to care for them? It was a natural progression from caring for and knowing about the teeth of their animal friends to knowing about and caring for their own teeth. This was a fundamental educational program carried out by the teacher in the classroom and integrated into the regular subjects being taught. It was not something added on as an afterthought. Did it work?

The educational outcomes far exceeded what we had expected. Then, too, from the point of view of corrections obtained—a rather practical answer to the "hot air" critic—we had 89.5 per cent corrections in one grade of one school; 59 per cent corrections in one entire school, as against less than 30 per cent corrections previously when a dental hygienist was cleaning teeth in the school. In another school there were 100 per cent corrections in the kindergarten. All of the schools showed a marked increase in corrections and some of the schools were in foreign language areas of the city.

This was a fundamental educational program, but from it certain technics may be utilized even when we are attempting a program without the time, money, and trained personnel that we had in that program. We can interest children in their own dental condition through their interest in their pets. Why do we not think of that the next time we prepare a booklet or poster, or a classroom talk? Above all, the lesson we learned from that 1934 program was that our most effective work can be done as the stimulating influence to the teacher. The teacher knows how to transmute the dull facts which we present to her into the golden opportunities for learning.

This leads us, by a little jump of some 20 years, to a system which is being used right now in the State of Arkansas and, as far as we know, is an innovation from the administrative setup. There is an annual workshop held in Arkansas in which health and education authorities on both state and local levels try to work out their problems. Out of this meeting of the minds, there developed the idea of a health coordinator for every school. This is an ideal, but it is rapidly being attained. The State Dental Society participates in a limited portion of this workshop. Out of their deliberations grew the realization of the opportunity of working with this health coordinator in order to stimulate (promote) the teaching of acceptable mouth health practices.

As a result, the State Dental Society in Arkansas, through its district societies, has appointed dental coordinators, or consultants, in 90 localities throughout the state. Each of these dental coordinators represents organized dentistry and the dental philosophy of the State Dental Society. He is also a liaison person between the State Health Department and the Department of Education on the local level. This dental representative of the state society is listed with the state dental director. He receives the latest educational material put out by the American Dental Society, special information on fluoridation or other material, and is kept in touch with the march of events in the state by the state dental director. He is expected to work with the local health coordina-

tor or other representative of the schools or community in offering advice and resource material. He may also guide a corrective program into acceptable channels. This dental coordinator is not, however, just "the goat" to do free corrections for some energetic nurse or teacher. His job is to supply the teaching profession with authoritative dental information and, if possible, stimulate them into greater efforts along the lines of dental health.

Although this is a very new program with no precedent to follow, it is already beginning to pay off. For one thing, the dental profession is very happy about being included actively in the program and having a say about its operation. We are happy about it as it gives us a resident representative in outlying communities and also checks wasteful expenditures for educational material. We buy and supply only what the coordinator finds is wanted and used. Above all else, it is utilizing the teachers to teach while we supply the materials. One of the outcomes of this system has been the admission of a representative of the Dental Society to the monthly conferences between the State Departments of Health and Education. Here, then, is a rather simple technic which, while too young to speak for itself as yet, has every indication of being a practical means of promoting dental health at the local level.

Speaking of the local level and, after all, that is the final proving ground for your program, how about the local press? Generally speaking, this is not for people from the big cities; the people in the small communities are the ones we must reach and they are hardest to get at. They all read the paper, that is, if they are not too far back in the hills. Your most avid consumer of the public press is your rural resident who just about memorizes his weekly paper and then passes it on to his less fortunate neighbor. Every item is studied and usually given careful consideration. We must remember that it often constitutes the week's latest literature as well as source of information. It is a "tight" paper a lot of the time with local news carrying priority over national or international affairs. That is why it is so carefully read. Anyone can get national news from a radio, but the local item—that strikes a responsive chord—because it happened here in this village. If you can gain acceptance by the local William Randolph Hearst, you have a truly golden opportunity. Always bear in mind that you are competing with local news, then you will not feel slighted if your column is pushed out by a local pigsty fire. We have found the local press to be of tremendous help in promoting a dental program and probably influencing somewhat the habits and ideals of the reading public. Once you have learned to bring the "disguise language" of a profession down to the "earthy language" of the people, you will find the picturesque quality of descriptive words far more fascinating than any professional jargon. Never worry about a lack of material to write about. We are at present turning out two different columns every week that go to 187 papers, and this has been going on continuously for 12 years. You will discover that after a couple of years, or even less, you may go into a city to speak before some civic group and find that you are already known through your column in the press. You will never be able to measure the degree by which you influence the public toward better health practices, but you may find more people talking about your specialty. It will not be tangible. No bar charts can be made of your accomplishment, but it will trickle back to you in the most unexpected ways.

To be practical about this newspaper business we must face up to certain fundamental rules. A chatty style, colorful use of familiar words, and

short sentences are necessary. You must be prepared to scan a large amount of current dental literature with an eye to newsworthy material. It is advisable to clear all releases with your state dental society. You would not want to offend someone in private practice by something which you only see through the eyes of a public health person. Also, if the release has received the approval of the society, you are in a wonderfully strong position if someone decides to take exception to what you said. Our society clears all of our releases for material, but not for vocabulary or style. From one page double spaced typing to a page and a half is all that you can expect any paper to accept regularly. Slant your items locally, and do not be afraid to tear into a discussion with both fists flying if you know you are right. Be sure you are right—then fight for it. The public and the papers like a good scrapper. We have never yet had a paper refuse to print our column even when it was criticizing an industry which buys a great deal of advertising space.

We are fairly well agreed that most learning takes place through doing. Here is a tool of education which can be used to good advantage in promoting a dental program. Get the community interested in "doing." We must never underestimate the power of a group of organized women with an objective. Even an obdurate official will succumb to a nagging wife. But what are they to nag about? That is the point—before they can nag—they must find out what is needed. In discovering their need, they are "doing" and they are learning. A community group will believe its own findings before they will believe yours. Then why not organize the community group into a health council and start them on a voyage of discovery. Does it work? Here are just two concrete examples from our own state:

Mountain Home—Their Health Council decided fluoridation was a necessity and endorsed and supported the city council's project for fluoridation. The program for 1954–1955 is centered around making pupils at school more aware of good dental health practices.

Clinton—Endorsed fluoridation of city water supply; secured Health Department personnel to lead a discussion at a public meeting; and successfully carried out a project on nutrition through the use of demonstration of feeding of white rats. The demonstration was moved about and included all wing schools and also was set up in a store in town. The 1954–1955 program calls for definite plans to realistically present proof of value of good health habits.

These were just two of several reported at our health education workshop. These were school health councils. All phases of health are of interest to such groups. Dental health is only one of them, but a little guidance will keep it from being ignored—because it is so obvious and so universal.

The utilization of lay groups to promote a dental program is certainly the application of the theory of "doing." By their very blundering at the outset, they are shaking the dust and cobwebs off some of the old traditions and are creating learning situations. Learning takes place when students have to dig up information for themselves and then apply it to a given situation. That is exactly what is taking place in the workings of your local lay groups. You are applying a very sound educational technic when you encourage a lay group to determine its own needs. The desire to meet those needs is almost sure to follow.

And now it is time for Little Eva to skip from one cake of soap to another in her attempt to foil the Villain Commercial. Yes, we are thinking of the much abused radio—and television if

you can pay the royalty. Did anyone ever tell you that public health was glamorous and dramatic? Of course, it is!

There is nothing more deadly, nor a greater audience killer in radio, than the average 15-minute talk. A question and answer device is a little better, at least you hear both sides of the bass drum: Question—boom. Answer—boom. A round table mixes up the voices and sometimes the audience, but is much more human and may even prove interesting. What about dramatizing the subject? You do not have to be a Shakespeare, in fact, your listening audience will appreciate it a lot more if you are not. We ran weekly live programs with our own dramatic group from the Health Department for a long time. If you are tempted to try it though, there is one important thing which we found out that might be of value to you. If you expect a normally intelligent audience to remember just one point in a 15-minute presentation—that one point must be repeated at least 12 times in the 15 minutes. We tested our shows as accurately as possible to determine whether or not we were getting over our point. One point of emphasis only per broadcast—do not throw the entire dental textbook at the listeners in 15 minutes. By offering something in the line of a new pamphlet to those writing in, you may get an approximate measure of your listening public—also, you get rid of some of those pamphlets which have not been moving too fast recently. Out of this program developed "personal appearances" before lay groups. With an ordinary public address system, you have a "mike," and your audience will enjoy entering into the spirit of the thing by being asked to imagine they are in a radio studio. Then you give your show. After that, you circulate a specially prepared questionnaire on which the audience records what it remembers of the show. You have tested your show, and what is even more important, you have used that performance to create a learning situation in your audience. They had to think, recall, and write down what you had done in order to answer the questionnaire. Here, again, you are applying teaching technics to the promotion of your program.

Perhaps we can best sum this all up by suggesting that we put to practical application the appropriate technics of learning through all of the media of communication at our command. We may never know how much we have accomplished, for even the poet could not measure the fall of the arrow nor the fate of the song once they were released in the air. Related circumstances may be the only indication of the success of our efforts and the filling quality of our "hot air."

Nursing Activities of the Erie County Department of Health and Their Reporting

MARY E. JONES, R.N.

This is but another convincing demonstration of the widening effort on the part of public health agencies to apply modern statistical technics to the productive recording of services rendered. What proves effective in public health nursing may be assumed to be of practical application to other areas as well.

The activities of the public health nurses of the Erie County Department of Health vary little from those performed by public health nurses in any large county health unit. In the last few years there has been an increasing demand for bedside service for the care of the sick in their homes and in group activities for health education.

Our nursing activities are classified according to type of service. The direct nursing service that is rendered to or in behalf of individuals falls into three broad categories—home visits, school visits, and clinic visits. The clinic visits are further grouped into 12 subdivisions for specific type of clinic.

Other than direct nursing activities are classified in the following categories: (1) inservice education; (2) community education, which covers talks and classes for community groups; (3) activities related to administration or supervision of service, such as individual conferences with the supervisor or other administrative personnel, orientation of new staff or students, or evaluation of individual nurse's services; (4) promotional activities on an individual basis, such as conferences with community leaders for program promotion and professional meetings other than inservice education; and (5) special nursing assignments, such as hospital, nursing home, and midwife inspections, epidemiologic investigations and surveys.

The reports of the individual nursing activities are the basis for the composite reports of the nursing service of the agency. All of us who are concerned with the reporting of public health nursing services are likewise concerned with effective use of these reports. The primary purpose of this paper is to show how this agency has developed a reporting system that can be utilized both by administration and supervision in the areas of (1) program planning and evaluation, (2) the adaptation of the nursing service to meet community needs and wants, and (3) the supervision of nursing performance.

In January, 1951, the mark sense system for the reporting and tabulation of nursing activities was installed. Before that time the nurse completed a daily, a monthly, and an annual report, as well as her service records. Under the present system, the nurse checks the information concerning the activity performed on an individual card for statistical use. With the addition of the nursing notes pertaining to the content of the activity, a duplicate card becomes the service record. After mechanical tabulation of the statistical cards by the service bureau, a report is available on a monthly and quarterly basis for each nursing district. This report is tabulated

on: (1) an administrative basis, which consists of the work performed by all nurses assigned to the particular district office, regardless of the district in which the service occurs; and (2) a service basis, which shows the amount of nursing work performed in a given district by any nurse. This last tabulation is of particular importance because of the spread of the specialized nursing service. There are four such services within the 11 nursing districts. The remaining seven are generalized.

All districts use the same card for reporting which is prepunched for nurse number and card number before distribution. The original design of this card was carefully planned. The evidence of this has been that, although quite complex, it has had only two minor additions since installation.

It is felt that less nursing time now is spent on clerical work and, too, the tabulation of the reports is completed in much shorter time than was possible before. This system permits more extensive utilization of the reports for study purposes. One of the most important aspects in the effective organization and utilization of the available data for nursing studies is the close working relationship with the director of biostatistics. Interested and keenly aware of our problems, as a consultant she has given her services generously, both in the inservice educational programs and individually to administrators, supervisors, and staff nurses with specific problems that involve the application of statistical methods.

Program Planning and Evaluation

A few of the completed and current studies of the nursing reports will be briefly reviewed to show how essential these are to program planning and evaluation.

Recently, one of the supervisors brought a problem in for administrative consideration. One of the three towns in her district is in a fast-growing suburban area. It has a population of 42,000, a wide range of socioeconomic levels, but no concentrated low-income groups, and it is divided into eight census tracts. Three nurses are assigned to this town. Census Tracts 2 and 3, which cover over half the geographic area, are receiving only a token amount of the nursing service, a condition which has existed for a considerable period of time. The usual methods to promote the use of the service have been ineffectual.

A study of the town, by nursing area, was undertaken. It included the collection of data covering: (1) the kinds of people living there, (2) shifts in population, (3) the birth and death rates, (4) the neonatal death rate, (5) the death rates from leading causes, (6) a summary of the Health Department services which had been utilized, (7) a four-year study on a service basis of the nursing visits, and (8) the individual performance of each nurse assigned to the area. When the information was assembled, a review showed great variation in the three nursing areas in the kinds of people, the birth and death rates, the death rates from specific causes, and in the type of nursing service given.

After the analysis of this data, it seemed necessary to make a concentrated effort for individual nursing contact with the people, particularly in Census Tracts 2 and 3. A decision was made to have the nurses visit all infants born in September, 1950, 1953, and 1954. The visits to the newborns of 1954 would have the usual emphasis on

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Mrs. Jones is assistant director of public health nursing, Erie County Department of Health, Buffalo, N. Y.

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infant care; the one-year-olds, immunization; and the four-year-olds, emphasis on the sodium fluoride application, the audiometer test, and the preschool examination. In addition, the nurse would attempt to secure information on other significant health problems in the home, in particular, those in relation to the maternity cycle and geriatrics. Finally, the nurse would list any other topics discussed with the person interviewed that were not covered in the survey form.

This phase of the study is now in progress; what the findings will reveal is not known. Analysis and evaluation by the nursing administrator, the supervising nurse, and the staff we hope will produce clues to more adequate planning for nursing service which will meet the needs of the community. If, after this effort to evaluate the situation, it should be found that there is little need for service, some of the nursing service can be transferred to another area where the need is more evident.

This particular study has stimulated the preparation of similar information for each nursing district. It is to be assembled in loose-leaf form in order that additional information may be included and obsolete material deleted. Such a project as this will take a long time to complete. The area to which a new nurse is to be assigned will be given first priority, so that it becomes a natural part of her orientation.

Adaptation of Nursing Needs to Meet Community Needs and Wants

When a nursing supervisor has at hand pertinent information relative to the nursing district for which she is responsible it can help her plan her work. It also helps to justify a situation similar to the following which now exists in one of the rural districts. This particular problem is concerned with a steady increase in the demand for bedside service. At present about 60 per cent of the nursing visits fall into this area. Although the people are for the most part in the middle and higher economic levels and could afford to pay for nursing service, there is no visiting nursing service available. Therefore, the official agency is confronted with the problem of meeting the pressures exerted by physician referrals and individual demand to provide part-time nursing service for home care for the sick. In order to meet the situation, particularly with limited staff, other nursing programs have had to be sacrificed.

A somewhat different situation was evident in another district when the reports of the nursing visits to similar nursing areas were examined. In one, the population under five years of age was proportionately much greater than the group in the older age category, but the nursing visits were concentrated in the older age group. In the other area, where there were more old people, the greater proportion of the nursing visits were to the group under five years of age. Investigation by the supervisor revealed that the first nurse was again meeting community pressure for home care of the sick and the other nurse, who liked to work with children, apparently did not see the problems of the aging population in her area.

This kind of analysis of nursing visits provides an opportunity to evaluate nursing performance with objective data which helps to alert the supervisor to problem situations earlier than if she were to rely on impressions or judgment alone.

Supervision of Staff Performance

Statistical tabulation of the reports of the nursing visits has been used to establish a base line of performance for the nurse working in a particular district. It was found that the base for

the entire service is 78.4 visits per month. For the generalized districts, the range is from 66.2 to 100.0. It is true that the field visits are only one part of the nurses' work; therefore, a similar base has been established for both school and clinic visits. These bases may change from time to time because of changing programs, turnover in staff, or other related factors.

An example of the use of the individual nursing reports was demonstrated in the study of the visits for four years for seven nurses, all of whom are now assigned to the same nursing district. The visits were plotted on a monthly interval against the base for the district in which they worked at any time during those four years. The record of one nurse was consistently below the base, another showed an increasing drop in production, another hit a plateau for four months, then gradually increased the quantity of visits. One of the nurses, who had been in three different districts during the four-year period, maintained a fairly consistent level of work, above average, in each work situation.

Granted that this shows little of how the nurse functions, it at least gives evidence of how much she does. Joint evaluation by the supervisor and staff nurse, with the nurse plotting her own progress and with other factors taken into consideration, provides a supervisory tool of measurement of quantitative performance. The basis for estimating quality control of work organization, content, time, and cost of visits can be related to the production record.

Nursing reports are only one means to be used in the supervision of the staff nurse and must be evaluated by the supervisor and staff in light of all other pertinent factors.

Summary

This system of reporting and tabulating of nursing activities has provided an effective method for quantitative evaluation of the nursing service. With the volume of work in this agency, which consists of handling 10,000 to 12,000 cards per month, the mechanical system of tabulation has proved economical, rapid, and effective. In a smaller agency, manual tabulation may be more economical and equally effective.

Only a few highlights were included in this discussion. There are still many areas of study in our nursing reports which have not been explored for their application to the service programs of this agency. Occasions are continually arising in which data of this kind are of value in order to define and evaluate problem situations in relation to either individual staff development or service program planning and evaluation.

Nutritional Needs of Institutionalized Patients

JAMES M. HUNDLEY, M.D., F.A.P.H.A.

Nutrition standards serve the obvious purpose of helping to insure dietetic adequacy in the meals served in various kinds of institutions, but they also may play an important role in such practical matters as food control and management and budgeting.

No attempt will be made to present a complete discussion of the nutritional needs of the many different types of institutionalized patients. Instead, an attempt will be made to take a broad and practical look at the nutritional needs of such patients by discussing the subject of nutrition standards for several categories of hospitals.

In 1952 the Bureau of Medical Services requested the National Institutes of Health to recommend a set of nutrition standards to be used in feeding patients in Public Health Service hospitals. The following year a similar request was received from the Clinical Center, the new research hospital at the National Institutes of Health. This paper will describe the nutrition standards, the facts and reasoning which lay behind the various recommendations, and some practical experience gained in their application.

The first question that might be asked is: Why have nutrition standards for hospital feeding? There are two main reasons. The first one is obvious. Nutrition standards furnish a yardstick against which one can measure the nutritional adequacy of the feeding practices of a given institution. It is axiomatic that good nutrition is essential not only for health but is an important factor in recovery and speedy rehabilitation in a variety of diseases. The second reason for nutrition standards is not so obvious. Nutrition standards can serve as a base line for an efficient system of food management and control, not to mention the practical problem of formulating and developing budgetary requests for food. This becomes particularly important when the food and dietetic services of hospitals scattered throughout the country are administered from one central point. Under these circumstances good nutrition standards are particularly useful in making budget estimates and for making raw ration allowances within the limitation of available funds.

It required only superficial study to conclude that no single nutrition standard could be devised that would be applicable and valid for all hospitals. One must consider the average age, sex, and activity status of the patients, the types of diseases treated, and many other factors before one can arrive at accurate nutrition standards for any given hospital. In the specific problem at hand there were five distinctly different types of hospitals to be considered, i.e., general medical and surgical, neuropsychiatric, tuberculosis, leprosy, and a research institution.

There are two fundamental approaches to this problem. Nutrition standards could be formulated for each type of patient and illness, i.e., presurgical, fracture diets, diets for burn patients, convalescent diets, etc. This approach is cumbersome and is not

practical in hospital food management. Furthermore, it begins to invade the domain and prerogatives of the attending physician in prescribing special diets for individual patients. Obviously, it is not the dietitian's responsibility to prescribe for the patient, but to translate the physician's dietary prescription into foods the patient will eat and which will meet the nutritional goals specified. The second approach is to develop nutrition standards that will meet the average need of the total hospital population and within which the need for modified diets as well as normal diets can be accommodated adequately. The latter approach was chosen since it is considerably more practical and allows maximum flexibility.

Two technics are available in implementing the latter approach. The nutrition standards can be set in terms of weight of food by food class. The U. S. Department of Agriculture has followed this approach in their recommendations on "Food Planning for Institutions." [1] In these plans, foods are classified into 11 different groups according to nutritional similarity and the amount of each food group required daily to meet a specified nutrition standard is given. This is a very practical and flexible technic and has been followed in a number of institutions.[2] However, the U. S. Department of Agriculture plans are designed for healthy people, not sick people.

Preliminary studies in several Public Health Service hospitals, in which existing food consumption patterns were compared to the U. S. Department of Agriculture food plan at moderate cost for a physically active man, revealed several shortcomings. In particular, the U. S. Department of Agriculture plan provided more of certain food groups such as leafy, green and yellow vegetables, and cereals, with less of others, particularly high quality protein foods. These differences were regarded as of some importance, not only in meeting nutritional needs, but in providing high diet acceptability in sick patients. Accordingly, it was decided to adopt the second technic, namely, to set the nutrition standards in terms of recommended daily intake of calories and nutrients. Actually, nutrition standards set by either of these technics can be translated one into the other. The principal advantage of the type of nutrition standard which was adopted is flexibility in that it can be implemented in a manner similar to the U. S. Department of Agriculture plan [1] or by any other appropriate technic.

The starting point for all of our nutrition standards was the Food and Nutrition Board's Recommended Dietary Allowances,[3] the most authoritative and generally accepted dietary recommendations in this country. When using the Recommended Dietary Allowances [3] for this purpose there are several aspects which must be considered. First, they are not physiological minima. Rather, they are recommended allowances for abundant nutrition. Most of the specific nutrient allowances contain deliberate excesses to provide for those individuals whose nutrient requirements may be greater than the average or usual requirement. On the other hand, they are designed to promote and maintain health in healthy persons. They are not designed to provide for those who are ill, those who are being prepared for surgery, or who are recovering from debilitating illness. Consequently, some

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Dr. Hundley is chief, Laboratory of Biochemistry and Nutrition, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare, Bethesda, Md.

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Table 1—Recommended Daily Dietary Allowances for Public Health Service Hospitals (Tentative)

	Calories	Protein	Calcium	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
		gm.	gm.	mg.	I.U.	mg.	mg.	mg.	mg.	I.U.
Food and Nutrition Board's Recommended Dietary Allowance for a Physically Active Man	3,000	70	1.0	12	5,000	1.5	1.8	15	75	..
Nutrition Standards Public Htalth Service Hospitals										
General and Neuropsychiatric	3,000	100	1.5	12	5,000	1.8	2.0	18	75	..
Tuberculosis and Leprosy	3,600	125	2.0	15	5,000	2.0	2.0	20	100	400
Clincal Center	2,700	95	1.5	12	5,000	1.6	1.9	16	75	..

The figures above represent food as served to the patient (not actual intake). They do not include any allowance for wastage in food preparation.

Additional Recommendations: 1. All salt should be iodized. 2. All bread, flour, and corn meal should be "Enriched." 3. All milk for patients with tuberculosis and leprosy should be fortified with vitamin D. 4. About 20 per cent of calories should come from fat in regular diets; about 33 per cent from fat in high calorie diets.

modification seemed indicated for our purpose.

General Hospitals—The various standards which were devised are summarized in Table 1. The Food and Nutrition Board (National Research Council) Recommended Dietary Allowances [3] for a physically active man are shown in the top horizontal line. This was selected as the starting point for the nutrition standard for Public Health Service general hospitals. A brief description of patients in this type of hospital may clarify the reasons for this. The usual population is almost entirely male; only a few women and very few children are admitted. The typical patient is derived from the Merchant Marine or the Coast Guard and is accustomed to a physically active life and relatively high food intake. There are a sprinkling of other government beneficiaries, most of whom are also accustomed to a moderately active life. A rather high proportion of the patients are ambulatory during their period of hospitalization. An appreciable number of patients, particularly merchant seamen, are received in a somewhat nutritionally depleted state. Otherwise, these hospitals contain the usual gamut of medical and surgical patients with the usual requirements for special therapeutic diets of various sorts.

Three thousand calories were considered ample as a general average when allowance was made for those patients on reducing or other restricted diets and for those who are unable to consume a normal amount of food. The allowance for protein and B vitamins was increased somewhat to provide some margin in preparing patients for surgery, for those receiving large amounts of antibiotics, for patients with burns and other major trauma, to promote convalescence and rehabilitation, and as a means of encouraging the use of foods with a high nutrient content. The calcium standard was increased above the Food and Nutrition Board's recommendation for the same reasons, as well as to provide for patients with fractures and those who may have lost calcium as a result of immobilized bed rest. The cal-

cium standard may need to be revised downward somewhat especially in view of the recent decision of the Food and Nutrition Board to lower their recommended allowance for calcium from 1.0 to 0.8 gm.[4] No reason was apparent for changing the allowances for iron and vitamin A. Patients with suspected deficiencies of these nutrients and those who have lost blood as a result of their illness usually receive specific therapy. Likewise, no increase was recommended in ascorbic acid. This can be a rather expensive nutrient to provide. There is evidence that 75 mg. of ascorbic acid represents a considerable surplus over actual needs.[5] In spite of the well known role of ascorbic acid in wound healing, and the unquestioned derangement of ascorbic acid metabolism which is found in a variety of illnesses and following surgery,[6, 7] there is no good evidence that the provision of very large amounts of ascorbic acid accomplishes anything useful for the typical patient. In any event, patients with a suspected deficiency of ascorbic acid usually are treated with supplemental specific therapy.

Neuropsychiatric Hospitals — After considerable thought and study it was decided to recommend the same nutrition standards for neuropsychiatric hospitals as for general hospitals. This must be regarded as a very tentative decision especially since our neuropsychiatric hospitals contain a greater number of females than do our general hospitals. The ratio in the typical neuropsychiatric hospital is about one female to five males. Further studies may clarify and lead to some revision of this recommendation. Actually, there were far fewer facts available to us on which to base decisions concerning neuropsychiatric hospitals than was the case with our general hospitals.

The principal reasons which led to this tentative recommendation were: attention to adequate nutrition is notoriously haphazard in many mental institutions; the hopelessness of many mental illnesses rather naturally leads to lack of concern about nutrition both from the staff and the patients themselves; the very nature of some mental illnesses leads to diminished food intake and bizarre food habits so that it becomes important that such food as these patients consume be of high quality and nutrient content.

Actually, the literature contains several references to patients encountered in mental institutions who responded to specific nutritional therapy, some to the point where they were apparently cured of their illness.[8-10] Mental illness is bad enough in itself; it should not be compounded by superimposed nutritional deficiencies. On the other hand, many patients with mental illness seem to find an emotional outlet in eating. It is a common experience that many mental patients will demand one and one-half times the usual portions of food and many will develop obesity unless their proclivity to overeat is controlled. In the specific problem of Public Health Service neuropsychiatric hospitals, a considerable portion of the patients engage in rather heavy labor in farming, dairying, and other duties about the hospital station. A majority of the patients are ambulatory and engage in some physical activity. Consequently, there seemed to be justification for recommending that these patients receive a diet which would meet the same nutritional standards as for general hospitals.

Tuberculosis and Leprosy Hospitals— The recommended nutrition standard for such hospitals needs little comment or explanation. The importance of providing a high caloric, high protein, high vitamin, and mineral diet is well established not only to rehabilitate the patients who are usually undernourished when admitted, but to aid in promoting recovery from the disease itself. Such

diets should not be forced on these patients, particularly the tuberculous, to the point where actual obesity results, as has happened many times in the past. There is no evidence that more than a few pounds of excess weight has any beneficial influence in these diseases. There is some evidence that the blood levels of vitamins A and C are frequently low in tuberculous patients and some observers have encountered evidences of scurvy and vitamin A deficiency particularly in patients with far advanced tuberculosis.[11, 12] It seems quite likely that the vitamin A levels recommended should be raised to about 10,000 I.U. Calcium recommendations were set at a rather high level to provide ample calcium for healing lesions. Vitamin D was recommended because of its role in calcium metabolism and since some of these patients are bedridden and may not be exposed to sunshine for rather long periods.

Empirical clinical experience in Public Health Service leprosaria has led to the general practice of treating leprosy patients with approximately the same diet as patients with tuberculosis.

Clinical Center — This research hospital presented unique problems. The nutrition standard shown in Table 1 was set before the hospital was actually occupied. Consequently, there was no experience on which to determine the percentage distribution of patients by age, sex, activity status, or need for special diets. The recommended nutrition standard was based on the assumption that the patients would be almost entirely adults with an approximately equal number of males and females. Thus, the nutrition standard shown in Table 1 is basically an average between the general hospital nutrition standard, which is based on the Food and Nutrition Board's physically active man, and allowance derived in a similar fashion from the Food and Nutrition Board's physically active woman.[3]

Your attention is called to the additional recommendations at the bottom of Table 1. These seem especially pertinent since a surprising number of institutions do not use enriched products ordinarily.

Discussion of Nutrition Standards— From the sketchy description given above it should be quite apparent that there were a number of hazards and uncertainties in devising these nutrition standards. The estimations of expected age, sex, activity status, and need for modified diets by the average patient in a given hospital are factors subject to change. Furthermore, sufficient nutritional information to make precise calculations and recommendations is lacking in some instances. The general philosophy that lay behind these standards was that if a guess had to be made and an error risked, the guess was usually on the side of nutritional abundance rather than nutritional stringency. These nutrition "standards" might better be regarded as nutrition "goals" in their present stage of development.

There may be some who would maintain that there is no justification for the increases in vitamin, mineral, and protein quantities specified in the "general" hospital nutrition standard on the basis that the Food and Nutrition Board's Recommended Dietary Allowances already contain sufficient surpluses to cover all needs. On the other hand, the Food and Nutrition Board itself has formulated recommendations generally known as "Therapeutic Nutrition"[13] which specify very high nutritional allowances with the aim of promoting maximum chances for speedy recovery of military personnel suffering from various stresses, including wounds and other trauma. Evidence for the practical utility of this concept is quite in-

Table 2—Comparison of Nutrition Standards to Food Consumption in Selected Hospitals *

	Calories	Protein	Calcium	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid	Vitamin D	Daily Cost
		gm.	gm.	mg.	I.U.	mg.	mg.	mg.	mg.	I.U.	$
Nutrition Standard Public Health Service "General"	3,000	100	1.5	12	5,000	1.8	2.0	18	75	..	
General No. 1	3,000	120	2.0	13	10,900	2.7	3.3	17	92	..	0.993
General No. 2	2,600	97	1.1	10	13,600	1.7	2.2	14	90	..	0.897
General No. 3	2,865	107	1.3	9.2	7,100	1.6	2.4	9	83	..	0.947
General No. 4	3,530	133	1.7	18	7,700	1.7	3.3	18	101	..	0.929
Nutrition Standard Tuberculosis and Leprosy	3,600	125	2.0	15	5,000	2.0	2.0	20	100	400	
Tuberculosis Hospital	3,850	141	1.8	19.4	27,800	2.0	4.8	27	199	n.s.	1.124
Leprosy	3,920	193	2.65	21.8	31,800	3.2	5.6	28	141	n.s.	n.s.

n.s. = not stated.

* These studies were made during 1952 by the dietitians in the various hospitals, the Dietetic Branch, and the Division of Administrative Management, Bureau of Medical Services, Public Health Service.

complete for either military or civilian personnel.[14] The primary reason for the moderate increases in the nutrition standards which are presented in this paper was not the "Therapeutic Nutrition" concept, as such. Rather these increases were based on the following reasoning. Most patients with illness severe enough to demand hospitalization have a period when food intake is markedly reduced. The adoption of relatively high standards for protein, vitamins, and minerals forces the use of foods of high nutritional density, i.e., high in nutritional protective factors as well as high in biological value. Thus, such patients would receive the maximum benefit from such food as they do eat. This reasoning is valid only within certain limits of caloric intake,[15] but seemed of sufficient importance to justify, along with other considerations already mentioned, relatively high nutrition standards.

Practicality of the Nutrition Standards—The best nutrition standard would be worthless if it were impractical. Consequently, studies were undertaken by the dietitians in several of our hospitals and analyzed by the Dietetic Branch and the Division of Administrative Management of the Public Health Service to compare the nutrition standards to food as prepared and served to patients. Some of this information is shown in Table 2. A cursory examination of this data will show that the nutrition standard for general hospitals is practical and attainable in most respects and with a reasonable dollar cost for food. Two of the four hospitals met or exceeded the caloric standard; one failed by only 4.5 per cent and one by 13 per cent. All four met or exceeded the standards for protein, vitamin A, riboflavin, and ascorbic acid. Two exceeded and two failed to attain the calcium standard. One hospital failed to reach the iron standard. One might suspect that this hospital was not using enriched bread and flour. Three failed to meet the standard for thiamin, but by only very slight margins. Only one of the hospitals reached the standard for niacin and one achieved only 50 per cent of the standard. The latter finding seems

quite remarkable in view of the fact that investigators have experienced some difficulty in formulating diets containing 5–6 mg. of niacin where every effort was made to select foods as low as possible in this vitamin.[16]

The nutrition standards for tuberculosis and leprosy hospitals also seem quite practical in view of the data shown in Table 2. The diets met or exceeded the nutrition standard in every respect except that the tuberculosis hospital failed to attain the calcium standard by a very slight margin. We do not yet have detailed information from our neuropsychiatric hospitals.

Studies on the practicality of the standards for the Clinical Center are still under way. Experience to date has revealed several difficulties. The expected even distribution between males and females did materialize. However, far more children were admitted than anticipated. In the first year of operation 18 per cent of the admissions were children under 15 years of age. A large number of the patients have had serious chronic debilitating disease which has lowered their food consumption. Many of the patients have been on special diets for metabolic balance experiments in which the intake of calories and nutrients were artificially controlled at desired levels. In general, the average patient has been unable to consume the number of calories specified even though a selective menu was used. The voluntary consumption of milk has not been great enough to raise the calcium intake to specified levels. Other difficulties have arisen but are not discussed since these studies are preliminary and still continuing.

Summary

This experience in devising nutrition standards for Public Health Service hospitals is offered for what help it may be to those faced with similar problems. Nutrition standards serve a useful purpose in helping to insure the nutritional adequacy of food served, as well as being part of a practical system of food control, management, and budgeting. However, the various factors which influence nutritional needs are so different from one type of institution to another, that nutrition standards probably should be adapted to local circumstances in most instances rather than attempting to have one set of nutrition standards for general use. They should be regarded as nutrition goals designed to promote good nutrition under all possible circumstances rather than rigid standards.

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Improving New York Farm Labor Camps

Regulations to improve living conditions at farm labor camps in New York have been adopted by the State Health Department. Each operator of a labor camp must obtain an annual permit from the local full-time health officer who is made responsible for seeing to it that the camp meets the specified standards. He may revoke the permit if he finds the camp at any time operated or occupied in violation of the law, or the state or local sanitary code.

In part, the regulations require adequate sleeping quarters with at least 30 square feet of floor area for each individual over two years of age; at least two exits from all sleeping quarters and dining rooms; full safety precautions to guard against fire hazards; water of satisfactory quality and sufficient amount for all purposes with full safeguards against pollution; approved toilet and bathing facilities; and full facilities for sanitary storage, handling, and protection of food and milk supplies.

These regulations were made possible by a 1954 act of the Legislature and the Joint Legislative Committee on Migrant Labor. The law directs the department's Public Health Council to prescribe standards "including provisions for sanitary conditions; light, air and safety; protection from fire hazards; maintenance, and other matters appropriate for security of life or health."

Growth Through Inservice Training: Knowledge–Attitude

B. RUSSELL FRANKLIN, M.P.H.; PAUL W. PURDOM, M.S.C.E., F.A.P.H.A.; and GRANT W. HUSBAND

A persuasive and useful reminder here of an often neglected psychological concept. Emotion may play an influential part in blocking or furthering comprehension and learning.

The people of Philadelphia cast a new course for their city government by adoption of the Home Rule Charter [1] in 1951. Recommendations of the 1949 Public Health Survey [2] that an Advisory Board of Health be created and other administrative changes be made within the Department of Public Health were incorporated in the new charter. In addition, it established a Department of Licenses and Inspections which required further reorganization of services provided by the Department of Public Health. Changes of great magnitude and complexity were wrought in the organizational structure of the city. This discussion will be confined to innovations in the administration of environmental sanitation services and the associated training problems.

Designated to administer and enforce ". . . statutes, ordinances and regulations relating to public health including those dealing with air, water, food and drugs, health hazards and pests, including animal, insect and plant life," the Health Department was also delegated responsibility for public health research and education. Housing sanitation, including plumbing, was consolidated with building inspection services from other departments in the new Department of Licenses and Inspections, and all licensing functions were similarly transferred.

Prior to adoption of the Home Rule Charter, there were two divisions related to sanitation in the Health Department with independent units staffed by specialized inspectors. Territories served by the different units were overlaid. Operations were carried out from a central office under very loose supervision. The result was an inefficient, inflexible, and ineffective organization. Typical was the practice of as many as three types of inspectors—milk, food, and restaurant—visiting a single eating establishment.

Upon the appointment of a public health engineer as director of environmental sanitation in January, 1953, all sanitation services, except air pollution control, were combined in a single unit. Air pollution control has since been added by Administrative Board order. According to the natural functional relationship, activities were realigned into sections: Air Pollution Control, Environmental Health, Milk and Food Sanitation, Veterinary Medicine, Industrial Sanitation, and Housing Hygiene. To provide better direction and efficiency of operations, field services were based in five district offices each under a sanitation supervisor.

Because of an unusually small field inspection staff, the most effective use of personnel became a necessity. Thus, it was decided to generalize the field personnel to the greatest extent possible. During the development of these plans the Public Health Service, at the request of Philadelphia, made evaluations of milk and restaurant sanitation pro-

grams. The results of these surveys and observations by department personnel revealed serious program deficiencies and emphasized the imperative necessity of revamping the sanitation service as soon as possible.

Under the Philadelphia Civil Service System a completely new series of job classifications became necessary to implement this plan for reorganization. A special class—Sanitarian Aide—was established to perform most of the inspections previously conducted by the various inspectors. Since job duties were more demanding, the salary was set at a higher rate; however, qualification was obtainable only through promotional examination. It was evident that an inservice training program was essential to an orderly transition to this new program.

To do this a Sanitation Training Section was established in the Division of Environmental Sanitation. The training staff was appointed in November, 1953, and a formal inservice training program began immediately. The plan provided for three 11-week full-time courses. Personnel were allowed to attend at full pay and were detached from all other duties during the training period. Volunteers comprised all of the first two courses with selection being made by the inspectors themselves. Examinations for Sanitarian Aide were scheduled shortly after the completion of each course. To aid the employee it was agreed that in the event he failed this examination he could try again after about three months of supervised field experience.

The establishment of an Advisory Committee on Training was exceedingly helpful in overcoming some of the basic resistances to training found in industry reported by Surface[3] in the Harvard Business Review. This Advisory Committee was truly representative of the different groups to be trained—food inspectors, milk inspectors, and barber shop inspectors, as well as the director of the division, the training officer, the state director of professional education, the department's director of health education, a local professor of biological sciences, and representatives of two voluntary groups. The committee had several meetings prior to the start of the first training course for discussion of course content and a selection of the personnel to attend this first course. It met several times throughout the training courses to review problems and receive criticism regarding the content and conduct of the courses.

The objectives of this training were definitely twofold. Primarily, its aim was to acquaint the former specialist with new subject matter, methods, technics, field tests, and procedures for use in his new generalized duties. The secondary objective was to provide a course broad enough so that the former specialist might get an over-all picture of the entire field of environmental sanitation. The successful retention of such a concept was sure to help him in his Civil Service promotional examination. For these reasons a general survey type of course covering the field of environmental sanitation was given. The course content was similar to other sanitation inservice training courses given elsewhere. It covered some elementary arithmetic, chemistry, and bacteriology, as well as the current practices in the fields of water supply, sewage treatment, vector control, and milk and food sanitation. The public

Mr. Franklin is chief of the Training Section and Mr. Purdom is director, Division of Air Pollution Control and Environmental Sanitation, Department of Public Health, Philadelphia, Pa. Mr. Husband is associate director, Mental Health Association of Southeastern Pennsylvania, Philadelphia, Pa.

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health aspects of housing hygiene, accident prevention, plumbing, heating and ventilation, air conditioning, air pollution, school sanitation, trailer camps, noxious weed control, disaster sanitation, and radiological hazards were touched on in much less detail.

In a training course one is apt to consider the teaching of content and the acquisition of skills as the major factor in determining the success of the program. This is largely true, but there are other elements that have a profound and far-reaching effect upon successful learning. One of the most important of these is the human equation. Specifically, what are the individual and group attitudes toward training? What are their motivations for training, if any? Negative attitudes and poor motivation in the training group make successful training difficult if not impossible. The division became aware of the following feelings or attitudes which could interfere with training:

(Fear) "I might lose my job." "I'm too old to learn." "I don't know anything else."

(Anger) "They can't do this to me, I'll fight it." "This is the way they treat you after 14 years." "A bunch of dumb college kids are going to take our jobs." "It's not fair, we ought to do something about it."

(Suspicion) "This is a plot to get us out of our jobs." "The training program is a farce." "You can't trust anybody." "Politics are behind this."

(Anxiety) "I might as well give up, it's hopeless." "Nobody cares what happens to us." "Why did they have to change the system?" "Do we have to take an examination?"

These attitudes added up to mass and organized resistance to the training program. With this insight it was decided that these feelings would have to be worked through to insure the maximum opportunity for the inspectors to use their energy toward mastering the training course content. Therefore, a two-day session on human relations was inserted into the course, aimed at creating a more hospitable emotional climate within the group. This was accomplished by group discussion of the various attitudes, feelings, and areas of misunderstanding and distrust that could easily have created blocks to training. The use of role play with the trainees participating was another vital tool in removing tensions.

The inclusion of this session at the very beginning of each course was a deviation from course content found elsewhere. These two days were well spent in adjusting the individuals to the problems of working together as a group. It helped them understand themselves and their group relationships. It gave the training officers a better understanding of the members of the group and encouraged individual and group participation. Throughout the rest of the course the training officer carried on this student-centered type of training with the maximum emphasis on the individual as a human being. This was done by occasional personal conferences with the trainees and an attempt to be ever present with a helping hand. Sincere and sympathetic understanding given the trainees at this point helped them to see the personal benefits to be derived from the course.

The technical material covered in the course was presented in the usual classroom manner by lecture and chalkboard illustrations. It was found that the development of several glossaries by subject matter under consideration was helpful. These were given out at the beginning of a new subject, as were outlines on some of the talks given. A handicap to the presentation of laboratory procedures was the absence of individual laboratory work space. Likewise, the absence of working models —for example, dishwashing machines, pasteurizing equipment, etc.—made it

necessary to present this material by demonstration in the field. This is a substitute for learning by doing, but necessary under the circumstances. Standard pamphlet material was available and used as handouts to the students. Likewise, 10 copies of Ehlers and Steel's Municipal and Rural Sanitation were available from the division's library for the students' use during the course.

The use of audiovisual aids, films, film strips, and slides reinforcing the spoken word was found useful in stressing a point or to recall a visual image from screen presentation several days or weeks previous. Most of these aids came from the Communicable Disease Center's Training Division of the Public Health Service. Several excellent visual aids were obtained locally from industry and from the Pennsylvania Department of Health. Industry and other departments of city government were exceedingly cooperative and helpful on field trips, lectures, etc. Several furnished their own visual aids together with handout literature. The Training Section did not want for educational material on any of the subjects covered.

Field trips to a bacteriological laboratory, water and sewage treatment plants, ice, carbonated beverages, milk, ice cream and food processing plants, and an incinerator and garbage reduction plant all proved helpful in supplementing classroom teaching with practical working illustrations.

The weekly quizzes were perhaps the most effective measure of the teaching. These, much to our surprise, were met cheerfully rather than with the anticipated groan. The corrected quizzes served as an excellent review and summary of the course. The students recognized them as effective teaching tools and as an aid in studying for the Civil Service promotional examination.

At completion of the 11-week, inservice training course, the trainees were reassigned to district offices. Here, under close supervision, their field work provides opportunity for continued growth and development in environmental sanitation.

Several different types of tests were used to measure the results of these inservice training courses. The first was the Otis Test, a standard measure of I.Q. Second, the Pre- and Post-Course Evaluation Test, prepared by the Professional Examination Service of the American Public Health Association for the Public Health Service for appraisal of results obtained in their field training centers. These latter comprehensive tests measure the individual's basic knowledge of sanitation at the beginning of the course and again at the end. The Post-Course Evaluation Test is designed to be considerably more difficult. Thus, by attaining an equal score, the individual has increased his knowledge of sanitation appreciably. Third, the Civil Service examination measured in a very real and personal way the trainee's knowledge of sanitation.

Included in the accompanying table are the results of the above tests, together with personal statistics on the trainees. The scores on the pre- and post-tests are expressed as standard scores while those on the weekly tests and Civil Service tests are percentage scores.

The pre-test total standard scores

Statistical Data on Philadelphia's General Sanitation Inservice Training Courses—November, 1953–July, 1954

	Range	Average
Age of trainee	34–78	48
Years of formal schooling	4–13	10
Otis Test	13–50	34
Weekly class tests (percentage)	23–78	55
Total score APHA pre-test	19–51	36
Total score APHA post-test	35–71	52
Civil Service tests (percentage)	41–72	57

fluctuated from 19 to 51, with an average of 36; while the post-test total scores ranged from 35–71, the average being 52. These evaluation tests are comprised of 220 questions, divided among the following areas of knowledge: (1) basic sciences and epidemiology; (2) milk; (3) food; (4) water, swimming pools, plumbing, and sewage; (5) industrial hygiene, insect and rodent control, and housing; and (6) orientation, administration, and health education.

In these tests the trainees showed the greatest improvement (18 points) in the section on water, swimming pools, plumbing, and sewage. This is understandable, since the group had no previous instruction or field experience with these subjects in their work with the City Health Department. The smallest recorded improvement (8 points) was in the area of industrial hygiene, insect and rodent control, and housing.

We are grateful to the American Public Health Association staff for compiling the data on these trainees and to the director of statistics and research, Philadelphia Department of Public Health, for his analysis of this data.

This analysis shows a strong correlation between the pre- and post-test scores of the trainees and their individual Civil Service scores—a $+0.95 \pm$ S. E. 0.02 for the pre-test, a $+0.71 \pm$ S. E. 0.09 for the post-test. There was a definite correlation between the Otis Test scores and the Civil Service scores of $+0.63 \pm$ S. E. 0.11, and no correlation ($-0.31 \pm$ S. E. 0.17) between the age of the trainee and his Civil Service score.

Likewise, there was little or no relationship ($+0.45 \pm$ S. E. 0.14) between the trainee's formal schooling and his Civil Service score.

Although the results of the American Public Health Association Evaluation Tests show a considerable increase in the trainee's technical knowledge and a broadening of his concept of the scope of environmental sanitation, they were not, of course, designed to measure changes of attitude. Possibly in the long run these attitude changes in the trainee may be more important to the Health Department and to the people of Philadelphia than the newly acquired knowledge.

An attitude survey of the trainees of the three classes was conducted shortly after the last group finished their training. This survey revealed strong indications of marked changes in attitudes among the trainees. A majority of the group reported a definite increase in self-confidence along with other changes: "I know the why now—I don't have to say because the law says so! I see why a more detailed inspection is necessary." "There's a better understanding and spirit of helpfulness among my fellow workers now." "It's more than just a job now." "Training helped me understand the proprietors' problems—now I listen to what they have to say first." "The training course was the greatest thing that ever happened to me."

Conclusion

All trainees showed an increased knowledge of the field of sanitation as measured by the American Public Health Association Pre- and Post-Evaluation Examinations. There was some correlation between the various tests given (pre- and post-course tests, Otis Test) and the scores obtained by the individuals on their Civil Service promotional examinations for Sanitarian Aide.

The two days spent on human relations did much to resolve the tensions which might otherwise have interefered with the learning process. As the course progressed, there was a marked decrease in hostility and griping among the

group. The trainees moved from a point of distrust and suspicion of the training officer to one of trust and friendship.

A climate of cooperation in problem solving was developed within the group. A change of personal attitude has helped the trainees to find new understanding and satisfaction in their jobs. The three training courses were successful in preparing the previously specialized inspectors to assume roles of greater responsibility in the generalized program of environmental sanitation.

Such success was achieved because the division recognized the human reactions to training and approached the problem with due regard to the human elements in each class.

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"Circulation" Uses Interlingua

Circulation is the monthly medical journal of the American Heart Association. Beginning with the January, 1955, issue, each article appearing in the journal is summarized in Interlingua, the new international scientific language. Circulation is one of nine United States scientific magazines using the language.

Interlingua is composed of elements common to French, Italian, Portuguese, Spanish, and other Romance languages. It was first used at the time of the Second World Congress of Cardiology in Washington in September, 1954. Abstracts of papers given at that congress were published in Interlingua. The translations are made by Alexander Gode, chief of the Interlingua Division of Science Service and one of the leading exponents of the language in the United States.

The Program of the National Council on Food Protection

HENRY F. VAUGHAN, Dr.P.H., F.A.P.H.A.

Solid social values inherent in the old concept, "with the consent of the governed," can become a force for good in our own field. The story is told here of the effort of a group of industries to adopt and promote the acceptance of procedures and means to protect the public health, recognizing the truth that good health is also good business.

Let us first take a good look at the changing vista in public health and thereby discover what is new and what seems old. Health people have long endeavored to adjust and change methods of health protection and promotion in conformity with the newer knowledge as applicable to the needs and wants of people.

Organized health agencies were born in this country more than one hundred years ago in the spirit of the struggle against exotic disease without the benefit of scientific etiology and steeped in the spectacular and impressive fear of destruction. In their search for self-preservation the individual and his community submitted desperately to the force of sanitary law and unproductive council of harsh advisers whose dictates were accepted in the despair of impending catastrophe.

As a substitute for the fear and force of yesteryear, improvement in health matters has been forged from the desire for a fuller life, seasoned with the serenity and wholesomeness, which comes to us individually and collectively only through leadership and statesmanship. Technically we are wont to speak of this as health education. We have learned through the tedious and expensive way of experience that to promote the quality of living successfully it is not so much what we do for and to people as it is what we do with people in our endeavor to make good health, sanitation and cleanliness a way of life. We must translate health into the attitudes and behavior patterns of the many if we are to have clean and healthy communities. Health is people; it begins with the individual in his home and spreads to the family and the community in which he lives. Health is a quality of being—expressed in terms of wealth, contentment, and productivity. Public health is the summation of personal health and no community can be more healthful than the people who reside therein.

Men of the sanitary sciences were the first contributors to the modern health movement. Mass survival in urban life was made possible by improvements in water supply, sewage and waste disposal, food and milk protection. The basic principles of sanitation are understood and accepted generally. The noteworthy contributions have, however, been in those phases of sanitary practice which deal with the mass of population. A few engineering structures in terms of water treatment plants, sewage disposal plants, and milk pasteurizers provide wide and adequate protection for large numbers of people. We have not done so well in those health safety factors in which the prime responsibility is that of the individual in his home, at his place of work, or on the public highway. In the drift from the mass aspect of health toward the individual and his participation in

health matters, progress in sanitary science has not been impressive. Sanitation must somehow be made a way of life for the individual expressed in a quality of well-being, cleanliness, and wholesomeness.

Look now at the general trends in public health work. The historic exotic diseases like typhus, cholera, and yellow fever are only textbook memories in our country. The old communicable diseases of childhood are largely becoming matters of medical curiosity. Even tuberculosis and the venereal diseases are in the broad view approaching the mopping-up stage. Constant alertness to reversion to endemic and epidemic conditions is essential, and some situations, especially tuberculosis, require determined and drastic attention, but generally speaking, the public health programs are drifting away from the early ages of high infant and maternal mortality and the communicable diseases toward adult health, chronic disease, cancer, heart, diabetes, nutrition, mental health, and accident prevention. Most of these latter conditions demand sound and knowing participation on the part of the individual and his family. The mass approach alone will not be productive.

Concurrently there are new trends and changing problems which concern men of sanitary science. Some involve old problems with new facets. The early Greeks called our attention to air as a potential spreader of infection. What could have been more natural? There is nothing that man enjoys in common more fully than the air he breathes. Attention was momentarily drawn away from this carrier of infection by the more emergent dangers of polluted water and foul wastes. But today industrialized man dwells in communities enshrouded by a very thin veil of protection against his own self-pollution of the air. Similarly, he seems determined to expose himself dangerously to self-created noises, ionizing radiations, stream pollution, and unwanted personal and public dirt and filth.

How do we obtain good health for our communities? The necessity of a well organized, adequately staffed and financed full-time local health unit is well and widely understood. Among the six or seven basic and essential services of such a unit should be one devoted to environmental health. These fundamental needs have been emphasized repeatedly by the Committee on Administrative Practice of the American Public Health Association, and endorsed by the World Health Organization at the recent meeting in Geneva. To proceed in the development of such services, the health worker must know his community, its people and their needs and wants, the environment and its influence upon the health status of the people. The health problems must first be determined, and then planning of the program and the service may follow.

It is in this planning stage that many a public health administrator makes a serious mistake. The day has passed when the administrator can isolate himself in the aloofness of his swivel-chaired office and calmly declare what a democratic people should do for their own health. This procedure was accepted in the past under the terrifying approach of an impending pestilence, but today an educated public and industry demands and must have a part in the planning stage. It is through such participation that people are taught the need for health services and the necessity for programs in environmental health. It is through early and realistic joint plan-

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Dr. Vaughan is dean, School of Public Health, University of Michigan, and president, National Sanitation Foundation, Ann Arbor, Mich.

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ning that one engenders sympathetic and understanding cooperation on the part of the laity rather than stubborn opposition which ultimately defeats the program and may even wreck the health unit. Far-sighted is the administrator who practices the art of empathy, who leaves the comfort of his office, mingles with his public, his industrial, professional, and business leaders and endeavors to view their mutual health problems through the eyes of others.

The modern health movement demands, first, that the latent resources and interests of lay and business, as well as professional, groups be actively stimulated; and, second, that the concern of all be synthesized into a wholeness which will at once unify the general effort toward better health, and enable each in his turn to contribute most effectively and to share to the maximum in a cooperative undertaking. Specifically, the great need for many years has been to establish, on a voluntary and national basis, a liaison office where industry and the public health profession can meet to discuss their common sanitation problems and to take joint action toward their solution.

One of the first needs was to establish a practical and ethical program to provide the American public with sanitary food services and other health-related equipment that could readily be identified by a "seal of approval," awarded for compliance with uniform sanitation standards jointly drawn up by industry and health authorities and issued in the public interest. It is largely on this basis that the National Sanitation Foundation was incorporated in 1944. In matters of environmental health and sanitation the foundation has attempted to provide a common forum through which problems that do exist in this field can be discussed and worked out.

As the foundation is about to celebrate its tenth anniversary (in November, 1954) it has now to show for its efforts: (1) publication and nation-wide distribution of joint industry-health sanitation Standards for the design, manufacture, and installation of "Soda Fountain and Luncheonette Equipment," "Food Service Equipment," and "Spray-Type Dishwashing Machines"; (2) establishment of a testing laboratory to assist in the development of new joint Standards, and to test specific equipment for compliance with Standards as they are published, and to offer a seal of approval; (3) grants to universities for research, such as for the development of new methods to measure the cleanability of various types of eating surfaces and of cloth by means of radioactive tracers; (4) special studies, such as those undertaken to determine (a) the safety of various types of plastic pipe in conducting potable water, (b) the efficiency of various types of commercial and home dishwashing and clothes washing machines, and (c) the number and nature of conflicting governmental sanitation regulations in various parts of the country; (5) informational services to business, industry, the public health profession, and to the public itself regarding matters of sanitation and cleanliness; and (6) an educational program designed not only to be of direct service to individual segments of the public, but also to promote sanitation generally as a means of improving the quality of American living.

One recent development in the foundation's educational program deserving of special mention at this time is the food protection program for the nation as outlined by the National Food and Beverage Council. This council was organized in 1953 by the National Sanitation Foundation in cooperation with the National Restaurant Association, the American Hotel Association, the U. S. Public Health Service, state and local health services. The National Sanitation Foundation has been invited to act as the coordinating

agency to activate the interests of the food and beverage industries and secure the participation of the public health profession so that together these groups may solicit public understanding and individual sharing in sanitary food practices wherever food and drink are prepared and served—at home, in the school, in factory or office, hotel, restaurant, motel, tavern, church, club, or picnic grounds.

The planning stage has already brought together leaders of the public health profession and of the food and beverage industries who have suggested recommendations covering five areas: (1) policy, (2) education, (3) ordinance and code, (4) interpretative manual, and (5) research.

As a matter of general policy, the council has declared its objectives to be: (1) the development and promotion of agreed principles for the protection of health, wherever food and beverages are served, publicly or privately; (2) the voluntary coordination of the efforts of industry, official health agencies, and the public in betterment of food and beverage services; (3) improvement of environmental sanitation conditions surrounding such services—in the home, and at public and private food and beverage establishments—throughout the community; and (4) education of the public in the environmental approach to health and "sanitation as a way of life." The ultimate objective is to encourage people to realize the value of and to demand quality food, well prepared, served in a clean and sanitary manner in clean, pleasant surroundings, whether at home or any other place where food and beverages are served.

Education is the thread that binds together the elements of every public health movement. The purpose in this case is to awaken the individual and the community to the need of protecting health through the environmental approach. Methods involve: (1) the development of coordinated leadership; (2) endorsement and support from food and beverage associations, individual companies and members of the public (many such endorsements have already been made, including one by the Board of Health of the City of New York); (3) development of educational material and instructional aids to be used at all educational levels; (4) formation of a permanent staff to launch and keep the program going in all its phases; and (5) establishment of pilot programs as demonstrations in representative communities to work out details for activating community-wide educational campaigns with state and local leadership, from health authorities, industry representatives, and from other groups and individual citizens.

Existing ordinances and codes governing sanitation requirements in public and private eating establishments should be re-evaluated in the light of present-day conditions and new knowledge. A suggested code should combine the best features of existing food and beverage service regulations and should have the added advantage of being nationally acceptable and uniform for all communities. Such a code should be a joint effort, put together by leading representatives of the food and beverage industries, and of public health organizations, both voluntary and official, from federal to local level. The code should be presented to all communities and industry for voluntary and nation-wide adoption.

A guide or manual is needed to: (1) provide agreed-upon interpretation of sanitation standards; (2) enable both industry and regulatory agencies to have at hand the same set of guiding rules for sanitary operation; (3) offer technics and methods of conforming to the best sanitary practices; (4) assemble under one cover data relevant to modern food and beverage sanitation; and (5) suggest the responsibilities and opportunities, toward achieving superior sanita-

tion and protection, of management, health personnel, employees, building designers, equipment manufacturers, and others.

Research should extend into all fields of food preparation and service, in every place where food is served. Continuing research should be carried on to provide technically correct, up-to-date, practical data to make the proposed program nationally acceptable and effective for all. Both fundamental and applied research should be undertaken.

The National Food and Beverage Council's program is significant in three ways. Politically, it is an example of American enterprise—of industry and government acting in cooperative concert—voluntarily, effectively, democratically. It is democracy as it should be practiced. Economically, it is industry working for its own future development through the protection of the market it serves, inside the home and out. Socially, it is the recognition of an obligation on the parts of business and industry and of the public. It is the expression of government's primary interest in helping people to help themselves; it is a positive step toward man's quest to thrive as well as survive.

In conclusion we again emphasize that it is not so much what we do for and to people as it is what we do with people. The secret of national health is to be found in the homes of the people. It was Abraham Lincoln who left us these few words of appropriate advice: "The legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all or cannot do as well for themselves in their separate and individual capacities. In all that the people can do as well for themselves, the government ought not to interfere."

The future of public health is in question. What we plan now will be part of the public health program of tomorrow. The walls of administrative isolationism have already crumbled. New agencies are born as a result of need. Let us recognize new demands in this field first, and act. Cooperative participation on the part of businessmen, health men, and the people will bring better health for all.

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Industrial Injuries Under the National Insurance Scheme in Great Britain

ARTHUR MASSEY, C.B.E., M.D., D.P.H., F.A.P.H.A. (Hon.)

Friendly exchanges of information between countries must always be of value, even though policies and conditions of medical and public health organization will properly and necessarily differ.

The general system of social security, of which the Industrial Injuries Scheme is a part, crystallized in 1946 through the relevant acts of Parliament of that year which came into operation on July 5, 1948. It was the National Insurance (Industrial Injuries) Act which brought into being the present "compensation" procedures in respect of industrial accidents and diseases and superseded the former Workmen's Compensation practice.

The National Insurance system is administered apart from the National Health Service by a separate ministry. Until August 31, 1953, this was the Ministry of National Insurance. On that date, however, the former Ministry of (War) Pensions was merged with it to form the present Ministry of Pensions and National Insurance. Under the general NI Scheme there are three classes of insured persons, namely, (1) employed, (2) self-employed, and (3) nonemployed. Together they total about 24 million. By far the largest is class (1) which numbers 20½ million—and it is this class only that is covered under the Industrial Injuries Act.

It should be remarked as a fundamental point that the basis of compensation under the new scheme is loss of physical or mental faculty and not loss of earnings. A beneficiary may thus get an industrial injury pension while earning as much as he can, and it follows that there is no financial incentive for the pensioner to refrain from working to full capacity.

Whereas, under the old Workmen's Compensation Scheme, compensation was commonly the subject of litigation, it is now administered as a social service. But common law action is still open to an injured worker if he is alleging negligence on the part of the employer. In other words, we in Great Britain, have passed from employer's liability to state insurance.

The Industrial Injuries Scheme follows the line of former Workmen's Compensation practice in limiting coverage to industrial accidents and to such industrial diseases as are specifically "prescribed" by regulation.

Contributions and Benefits—Industrial injury benefits are paid from the Industrial Injuries Fund which is formed by (1) weekly contributions from employers and insured persons and (2) exchequer payments. The latter are at the annual rate of one-fifth of the sum of the combined contributions. The total income of the fund during the financial year 1952–1953 was £40,528,000 and the total outgo was £25,002,000. The accumulated credit balance of the fund at the end of the period was £93,712,000. (See Fourth Interim Report of the Government Actuary, London, England: Her Majesty's Stationery Office, 1954.)

Dr. Massey is chief medical officer, Ministry of Pensions and National Insurance, London, England.

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The benefits are (1) injury benefit, (2) disablement benefit, and (3) industrial death benefit. In respect to (1) and (2) there are certain increases, over and above the basic rates, for children or a dependent adult. In connection with (2) there are also various supplements available in suitable cases, namely: unemployability supplement, constant attendance allowance, special hardship allowance, and hospital treatment allowance. The respective amounts of the benefits and supplements in operation at the time that this paper was presented are shown in Appendix 1, while definitions of them are given in Appendix 2.

Determination of Claims—Industrial injuries claims are made at the ministry's local offices of which there are nearly a thousand in the country. In accident claims the history is checked at the place of work and the local insurance officer decides whether or not the accident has arisen out of and in the course of employment, and on the basis of a medical certificate whether it has caused incapacity for work.

In claims in respect of prescribed diseases (other than pneumoconiosis, byssinosis, and tuberculosis) the claimant is first referred to an "examining medical practitioner" on the diagnosis question. If the diagnosis is positive, the local insurance officer will normally admit the claim provided the other conditions are met. If the diagnosis is negative, the claim will be rejected, but there is an appeal to a medical board on the diagnosis question.

In successful claims injury benefit is payable for a maximum period of 26 weeks, or less if the incapacity ceases before. When injury benefit ceases disablement benefit is payable for any residual loss of faculty. This usually takes the form of a weekly pension based on the percentage degree of disablement as determined by a medical board.

In pneumoconiosis and byssinosis, owing to the fact that the incapacitating stages, if any, are the late stages, the successful claimant proceeds direct to disablement benefit (without antecedent injury benefit) as assessed by a special medical board which has first determined the diagnosis question.

Claimants on account of tuberculosis (who are a limited category) are seen initially by a chest specialist who pronounces on diagnosis and also on the issue of occupational origin. The insurance officer must then be satisfied that the claimant's occupation is such that tuberculosis is in fact prescribed in respect of him or her. If the answers are all positive, the claim will normally be allowed; injury benefit is then paid during incapacity followed by disablement benefit as assessed by an ordinary medical board.

The claimant has avenues of appeal on various questions. This aspect is dealt with later.

Medical Boards—The ordinary industrial injuries medical boards are located at over a hundred strategic centers in England, Scotland, and Wales. At each center there is a panel of doctors composed mainly of selected general practitioners in the vicinity who thus get at any rate a nodding acquaintance with industrial medicine. Each doctor on the panel may do, say, two or three half-day sessions a week on a fee basis. In connection with each center there is also a panel of consultants or specialists who are called on to furnish reports as required for the guidance of the boards. The boards are statutory in character and subject only, in the matter of corrective control of their decisions, to a medical appeal tribunal. Two doctors ordinarily constitute a board, although single doctor boards with limited powers are used in certain circumstances.

The primary job of the medical boards is to assess on a percentage basis the degree of disablement or loss of

faculty due to the relevant accident or disease in order that the appropriate gratuity or industrial injury pension may be awarded. The assessments may be provisional for stated periods or final.

The boards also advise, in cases referred to them for the purpose, on the question of entitlement to supplements to disablement benefit in regard to unemployability, special hardship, and the need for constant attendance. The boards also determine the diagnosis question in disease cases on appeal on that issue either by the claimant (following the examining medical practitioner's report) or by the local insurance officer.

Finally, the boards may advise on rehabilitation in selected cases before them, having in mind the medical rehabilitation services of the hospitals and the industrial rehabilitation arrangements of the Ministry of Labour and National Service. The approaches in this connection are made through the family doctor wherever possible.

Pneumoconiosis a Special Problem—Pneumoconiosis and byssinosis represent a special branch of work and claimants for these conditions are dealt with by separate pneumoconiosis medical panels consisting mainly of full-time specially qualified medical officers reinforced when practicable by outside chest physicians working on a part-time or sessional basis. The panels are situated at nine main centers convenient for the industries chiefly concerned, such as mining, pottery, metal working, and cotton spinning.

The insurance officer must first decide whether a claimant's occupation is such that pneumoconiosis is prescribed in respect of him. If so, the diagnosis question is next decided by a preliminary x-ray scrutiny and in cases thus selected, by subsequent clinical examination by the special medical board. On a positive diagnosis the board proceeds to a percentage assessment of any disablement due to the disease.

In recent years the Industrial Injuries Advisory Council has had referred to them for consideration and advice the whole question of the method of prescribing pneumoconiosis under the Industrial Injuries Act. The council asked their Industrial Diseases Sub-Committee to examine the question. The sub-committee did so in great detail and finally reported to the council in June, 1953. The council adopted the report which they submitted to the minister who presented it to Parliament in July, 1953.

An important development consequent upon the report is in regard to "sporadic" cases of pneumoconiosis—that is to say occasional cases occurring in men engaged in occupations other than the scheduled ones which carry a presumption. Formerly, if a claimant's occupation was held not to come within the schedule, his claim must fail at the outset. Now, if evidence of pneumoconiosis is forthcoming on behalf of a person who has been engaged since July 5, 1948, in some nonscheduled dusty occupation, the claimant may avail himself of a special procedure and secure investigation by the pneumoconiosis medical panel. Thus, he may get disablement benefit if the panel decides in his favor. This arrangement may also serve to indicate unscheduled occupations which may warrant research as to possible additions to the schedule.

There are two conditions for the admission of byssinosis claims, namely, that the claimant has been in a scheduled occupation for at least 20 years and that the disablement due to the condition is permanent and amounts to 50 per cent, or more. Prior to 1948, a 100 per cent disablement was a condition.

Pneumoconiosis is now compensated down to 1 per cent; the limit before this year was 5 per cent.

Appeal Machinery—It has been men-

tioned that it devolves on the insurance officer to determine whether or not an accident, which is the subject of a claim, has arisen out of and in the course of employment and whether or not, having regard to a claimant's occupation, a disease is prescribed in relation to him. Another decision he has to make in certain cases is whether or not some nonprescribed disease derives from an industrial accident. On the latter and similar matters he seeks medical advice as necessary.

A decision of the insurance officer is subject to an appeal first to a local appeal tribunal and finally to the Industrial Injuries Commissioner. The local appeal tribunal is a lay body, although a medical assessor may sit with the tribunal when necessary. The commissioner is an eminent lawyer and he is assisted by deputy commissioners. The commissioner seeks medical reports for his guidance as required.

Many of the commissioner's decisions are of great medical interest and are important as precedents. A few sample decisions are briefly summarized in Appendix 3.

The appeal from a decision of a medical board (either a general medical board or a special pneumoconiosis board) on the assessment question is to a medical appeal tribunal whose decision is final. The appeal may be by the claimant or at the instance of the minister. There is a medical appeal tribunal in each region consisting of an eminent lawyer in the chair and two doctors of top consultant rank. For each tribunal a panel of consultants is maintained. In London the names for the panels are obtained by requesting nominations from the Royal Colleges. Elsewhere nominations are obtained from the universities.

Schedule of Industrial Diseases—By regulations under the act provision is made for the extension of insurance to certain diseases and injuries not caused by accident which, when due to the nature of employment in certain occupations, are to be regarded as a risk of such employment. A schedule is maintained of these conditions known as "prescribed diseases," together with the occupations in respect of which they are prescribed.

For a disease or injury to be prescribed in relation to any insured persons the minister must be satisfied (Section 55 of the act) that: (1) it ought to be treated, having regard to its causes and incidence and any other relevant considerations, as a risk of their occupations and not a risk common to all persons, and (2) it is such that, in the absence of special circumstances, the attribution of particular cases to the nature of the employment can be established or presumed with reasonable certainty.

There are at present 39 prescribed diseases and, in addition, there is special provision for pneumoconiosis and byssinosis. A prescribed disease means not only the disease itself, but also any condition which results from it.

Every effort is made to keep the schedule up to date in response to advancing knowledge. But the evidence preceding any addition to the schedule must necessarily be valid.

Since July, 1948, when the present scheme began, there have been four additions to the schedule, namely: P.D. No. 36, poisoning by beryllium; P.D. No. 37, carcinoma of the mucous membrane of the nose or associated air sinuses and primary carcinoma of a bronchus or of a lung occurring in nickel workers; P.D. No. 38, tuberculosis in any occupation involving close and frequent contact with a source or sources of tuberculous infection by reason of medical, nursing, or certain ancillary employments; and P.D. No. 39, primary neoplasm of the epithelial lining of the urinary bladder (papilloma of the bladder) in certain chemical workers.

There also have been some extensions

of the occupations for which certain diseases are prescribed. In byssinosis, for example, coverage was extended to certain categories of waste cotton workers, whereas formerly it applied only to workers in raw cotton.

The addition of tuberculosis to the schedule is of particular interest in that it is the first disease to be included which is also really common in the general population. The successful claimant on account of occupational tuberculosis must have been in insurable employment involving close and frequent contact with the infection in one of the scheduled occupations; the latter are mainly medical treatment or nursing of tuberculosis, jobs ancillary thereto (e.g. hospital ward maid or hospital laundry worker), and research, laboratory or postmortem work in connection with tuberculosis. It will normally be presumed that the tuberculosis is due to the nature of the claimant's work if the disease first shows itself during employment in the scheduled occupation (but not less than six weeks after starting work in it) or within two years of leaving it.

Research—Section 73 of the act provides for research into the causes and incidence of, and methods of prevention of, accidents, injuries, and diseases against which persons are insured under the act or which it is contemplated might be added to the list of prescribed diseases.

The minister may himself employ researchers or he may make payments toward or otherwise assist outside research in relevant fields. In practice the latter method is followed and thus overlapping with established research organizations has been avoided.

The Medical Research Council is naturally the first body to be consulted in any research proposal. The council, for example, recently undertook an inquiry at the request of the ministry into certain aspects of Raynaud's phenomenon to assist in the consideration of the difficult problem of possible prescription.

The MRC, however, must often be concerned primarily with fundamental rather than applied research and work under Section 73 may on occasion be put out direct to a university department. Thus, special applied research was carried out for the ministry by the Nuffield Department of Occupational Health in the University of Manchester on the incidence of byssinosis in waste cotton workers.

Future lines of research are most likely to be indicated in connection with questions affecting possible additions to the schedule of prescribed diseases or to the related occupations.

In all these matters there is a close liaison with the Factory Department of the Ministry of Labour and National Service which is the department mainly responsible for the prevention of industrial accidents and diseases.

Industrial Injuries Advisory Council—The council is constituted as required by Section 61 of the act and consists of a chairman and members (including doctors) appointed by the minister and including an equal number of persons appointed after consultation with the appropriate organizations to represent employers and insured persons, respectively.

The council is an eminent body and certain references to its work have already been made. Proposed regulations under the act are usually required to be first referred in draft to the council for consideration and advice, and the minister refers to it many other important questions, such as those affecting the method of prescribing certain diseases and those concerning possible additions to the schedule. For these purposes the council works through a special Diseases Sub-Committee.

A Few Figures—A few random figures may be of interest. For full statistical

information reference is invited to the ministry's published annual reports.

The annual intake of injury benefit claims is about 800,000. Unlike ordinary sickness benefit claims, which are 10 times as numerous, there is no notable seasonal variation.

Injury benefit claimants are roughly 87 per cent males and 13 per cent females compared with 68 per cent and 32 per cent, respectively, in sickness benefit claims.

Of male injury benefit claimants, age group 25–29 years supplies the biggest proportion of all the age groups; in females it is the age group from 15 to 19 years.

New disablement benefit claims still increase year by year; in 1953 they totaled 117,000. This is because the scheme is yet in its early stages; the figures will no doubt stabilize later on.

The general industrial injuries medical boards examined about 233,000 claimants in 1953 and the pneumoconiosis panels 18,000 (+ 13,000 x-ray scrutinies).

The average assessment of disablement in accident cases is around 30 per cent; for the industrial diseases the average is about 40 per cent.

In 1953 awards were made in respect of about 2,000 industrial injuries deaths. There was no female deaths giving rise to awards of industrial death benefit during the year.

APPENDIX 1

National Insurance Scheme, Rates of Contributions and Benefits *

Weekly Contributions	General NI Scheme			Industrial Injuries Scheme			Total Contribution
	Employer	Employed Person	Total	Employer	Employed Person	Total	
	s. d.	s. d.	s. d.				s. d.
Boys under 18	2. 9.	3. 2.	5. 11.	3d.	3d.	6d.	6. 5.
Girls under 18	2. 2.	2. 7.	4. 9.	2d.	2d.	4d.	5. 1.
Men (aged 18–65)	4. 7.	5. 5.	10. 0.	5d.	4d.	9d.	10. 9.
Women (aged 18–60)	3. 8.	4. 3.	7. 11.	3d.	3d.	6d.	8. 5.

Industrial Injuries—Benefits (per week)

Injury Benefit: 55/–d, with additions, where applicable, of 21/6d for an adult dependent, 10/6d for first child, and 2/6d for each subsequent child.

Disablement Benefit: From 11/–d for 20 per cent disablement to 55/–d for 100 per cent disablement. For under 20 per cent cases, benefit is a lump sum not exceeding £185. Additions for adult dependent and for children (as above) are available in suitable cases.

There are also various supplements available for eligible cases viz.: Unemployability supplement: 18 years of age and over . . . 32/6d. Under 18 . . . 20/–d. Constant attendance allowance: Varies with nature of case—usually not exceeding 25/–d, but up to 50/–d in exceptional cases.

Special hardship allowance: Maximum is 20/–d.

Hospital treatment allowance: An amount representing the difference between the disablement pension in a case and the appropriate full disablement pension rate.

Death Benefit: Widow: 42/6d per week for 13 weeks, followed by 20/–d or by 37/6d, if she is over 50 or permanently incapable of self-support. There are also additions for children.

* At the end of 1954 increased rates were announced to take effect during 1955.

APPENDIX 2

Definitions of Benefits and Supplements

Injury Benefit—is payable during a period of 26 weeks from the time of the accident or the start of the prescribed disease to a person who is incapable of work owing to the accident or disease.

Disablement Benefit—is payable for any disablement which remains when injury benefit stops. If incapacity for work continues, sickness benefit (under the general National Insurance Scheme) may be paid in addition to disablement benefit.

Industrial Death Benefit—is payable to the dependents of the deceased if the accident or disease has proved fatal.

Unemployability Supplement—is the increase in an industrial disablement pension which may be given if the pensioner is incapable of work as a result of industrial accident or disease and is likely to remain so permanently.

Constant Attendance Allowance—is payable to a pensioner who is so seriously handicapped by an industrial accident or disease that he must always have help in connection with the daily routine of life.

Special Hardship Allowance—is an addition to an industrial disablement pension where the pensioner on account of the industrial injury or disease is unable to do his regular job or a job of an equivalent standard.

Hospital Treatment Allowance—is payable to a pensioner whose disablement pension is less than the full rate, and who has to enter hospital for treatment of the relevant industrial injury or disease; the allowance brings the pension up to the full rate while the pensioner is in hospital.

APPENDIX 3

Sample Commissioner's Decisions—Brief Summaries

A dental technician claimed on account of tuberculosis alleged to have been contracted occupationally. His duties involved the handling of dentures and wax molds. Although one of these direct from a phthisis patient might constitute a source of tuberculous infection, no patient attending the dental surgery was a known sufferer from the disease. Held that there was no evidence that the occupation probably involved close and frequent contact with a source of tuberculous infection and that tuberculosis was not prescribed in relation to the claimant.

A colliery surface worker died from prescribed disease No. 21 (infection by Leptospira icterohaemorrhagiae). Rats had been seen at the place of employment from time to time. Held that the disease was prescribed in relation to the deceased. There was evidence of the persistent presence of rats sufficient to show that the place of employment was rat infested.

A claimant's late husband suffered from sprained muscles and injury to his chest when he fell while carrying a plank which caught him in the back, but his accident was not, apparently, serious. He continued to complain of pain, however, and 33 months later he died of wasting due to generalized myelomatosis of the bones. Held that death was not the result of the injury by accident.

A ship's steward died of malaria due to mosquito bites while his ship was in a West African port. Deemed to be injury by accident arising out of and in the course of employment. Industrial death benefit granted to wife.

A hospital nurse fractured her ankle while sleep-walking in nurses' home of a hospital. Sleep-walking deemed to be due to emotional strain consequent upon her work. Ruled to be injury by accident arising out of and in the course of employment and appeal allowed.

A nurse contracted typhoid fever while nursing a case of that disease. Deemed to be an accident because typhoid may be contracted through a single incident or event when infection enters the body (e.g. contact with infected bed-pan). Appeal allowed.

Influence of Water Availability on Shigella Prevalence in Children of Farm Labor Families

ARTHUR C. HOLLISTER, JR., M.D., F.A.P.H.A.; M. DORTHY BECK; ALAN M. GITTELSOHN, M.P.H.; and EMMARIE C. HEMPHILL, M.P.H.

The marked effect that a sanitary facility may have upon the transmission of diarrheal diseases is strikingly pointed up.

The agriculture of California's San Joaquin Valley is dependent on a large and flexible supply of migrant temporary labor. In the 1952–1953 season at the peak, October, 1952, an estimated 175,000 temporary workers were engaged in agricultural activities in the valley. The number fell to 25,000 in March of 1953. There are shifting, short-time labor needs within the valley, and there is constant change in the composition of the labor force.

Cotton picking is the largest and latest seasonal crop activity in the state and, therefore, is frequently the last job of the year for many workers. Because the valley is climatically and traditionally a favored area for spending the winter and because there is considerable housing available, the migratory workers tend to remain here during their period of unemployment with consequent problems of health, welfare, and education.[1]

The migratory farm labor camps of California's Central Valley (Figure 1) are housing areas owned by growers or community organizations and located on large farms producing seasonal crops. The camps are maintained to house temporary labor during the crop season and rent is usually free. The types of housing and plumbing facilities provided vary from camp to camp. Some camps are composed of permanent dwellings with complete inside plumbing; other camps are made up of temporary one-room structures or tents, or both, with communal faucets, showers, laundry facilities, and pit privies. The quality of the water supplies was tested and found to meet minimum standards in all camps.

During 1950 in Fresno County,[2, 3] the etiology of the diarrheal diseases occurring among several population groups with a high incidence and mortality was studied. The major finding of this survey was that shigellosis constituted an important problem in agricultural labor camp populations and the most important mode of transmission was person-to-person contact. Our concern has been with this particular host-parasite-environmental complex. The 1950 study further suggested that a single environmental factor — water availability — played an important role in determining the prevalence of Shigella infections. Therefore, the main purpose of the 1952–1953 study, here reported, was directed toward more clearly defining the relationship between Shigella prevalence and the availability of water for personal hygiene (laundry, bathing, and especially hand washing). If the relationship proved to be a strong one, increased water availability could be utilized as an efficient control

Table 1—Total Persons and Families Cultured and Per cent Positive for Shigella by Location of Water Faucets in Camps Fresno County, 1952–1953

Location of Water Faucets in Camp	Persons Cultured			Families Cultured		
		Positive			Positive	
	Total	Number	Per cent	Total	Number	Per cent
Total	6,111	296	4.8	2,707	244	9.0
Inside all cabins	428	3	0.7	208	2	1.0
Mixed						
Inside	1,245	34	2.7	569	29	5.0
Outside	3,821	214	5.5	1,702	173	10.2
Outside all cabins	617	45	7.2	228	40	17.5

mechanism over the occurrence of Shigella infections in the labor camp populations.

Survey Methods

The survey methods used in 1952–1953 were essentially the same as in 1950.[2-4] At the initial visit sanitary facilities were recorded, and at every visit and in each camp a complete census was taken. Rectal swabs for the isolation of Shigella and Salmonella organisms were obtained from all available children, 10 years of age and under, usually one-half to two-thirds of all the children in these camps. The swabs were plated on SS agar immediately and then placed in tetrathionate enrichment broth at the camps. These cultures were returned to the field laboratory for screening tests. Cultures resembling Shigella or Salmonella were sent to the Fresno County Health Department Laboratory for further biochemical tests. The final definitive serological typing * was done by the Division of Laboratories, California State Department of Public Health.

There are more than 350 labor camps maintained in the irrigated areas of Fresno County's west side. From these camps 70 were selected for study, primarily on the basis of size. One hundred and fifty-seven visits were made to the camps. The interval between visits in a given camp was at least one month.

Collection of data began in October, 1952, and continued for seven months through April, 1953. During this period, 6,111 cultures were processed and 4.8 per cent (296) found positive for Shigella organisms. Both individuals and families were utilized as the basis for analysis. For this purpose a family was considered as all persons living in one household, and a "positive" family, one in which at least one child was found to be positive for Shigella during

* Shigella alkalescens was identified when found, but has been excluded from all tabulations of Shigella prevalence.

Dr. Hollister, Miss Beck, and Mr. Gittelsohn are associated with the Bureau of Acute Communicable Diseases, Division of Preventive Medical Services, California State Department of Public Health, San Francisco, Calif., and Miss Hemphill is with the Epidemiology Branch, Communicable Disease Center, Bureau of State Services, Public Health Service, Atlanta, Ga.

This paper was presented before a Joint Session of the Engineering, Epidemiology, Food and Nutrition, and Laboratory Sections of the American Public Health Association at the Eighty-second Annual Meeting in Buffalo, N. Y., October 13, 1954.

This study was supported in part by the Office of the Surgeon General, Department of the Army, through the Commission on Enteric Infections of the Armed Forces Epidemiological Board.

any month's period. Multiple cultures on any individual at an interval of less than one month were counted as only one culture.

Analysis

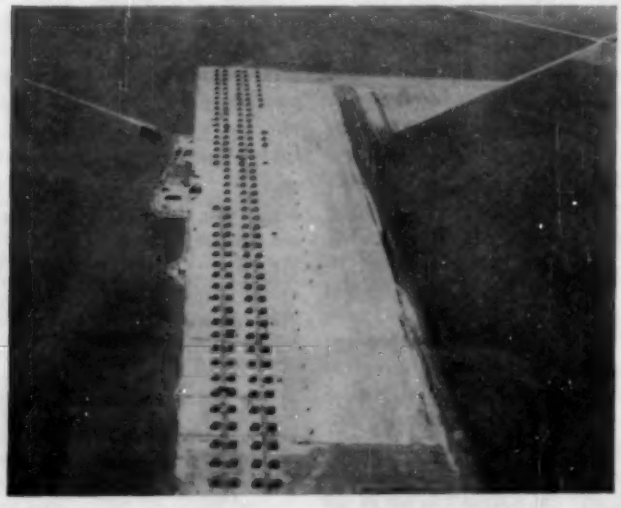
In Table 1 persons and families cultured are classified by the location of water faucets in the camp of residence. The percentage of positive cultures encountered varied widely, low in camps in which all cabins were equipped with private or inside water faucets, high in camps in which no cabins had inside faucets. Camps, where only a portion of the cabins had inside supplies, fell between the two extremes. In such mixed facility camps, the "inside plumbing" portion experienced lower positivity rates than the "outside plumbing" portion. However, the significance of these associations must be interpreted with consideration given to environmental and other factors related to the epidemiology of Shigella infections.

Data for these factors on cabins, classified on the basis of the availability of water, are next analyzed. The statistical grouping of all cabins within a given camp with one type of plumbing has been designated as a "subcamp." The term does not imply physical contiguity for, generally, in the mixed facility camps cabins with inside plumbing were not located together but were scattered.

Three types of "subcamps" were defined as follows: Type 1—cabins equipped with private water faucets, and private showers (tubs) or private toilets, or both; Type 2—cabins equipped with inside water faucets only, other facilities being outside and available for communal use; and Type 3—cabins equipped with no plumbing, all facilities being communal.

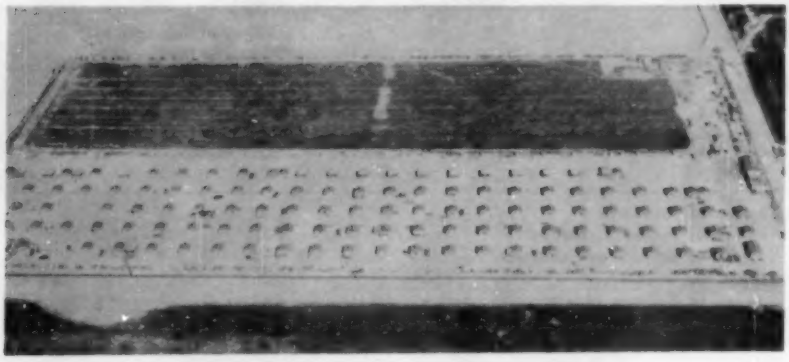
Table 2 also illustrates how Shigella

Figure 1—Farm Labor Camps, Fresno County, Calif.



A cotton pickers' camp near Huron, housing over 1,000 persons during the peak season. All cabins are identical one-room structures. A single outside faucet is provided for every eight cabins. Wash houses and showers are located in center of camp. Note row of privies at right.

Figure 1—(Continued)



Note: Isolation of camps from other housing, uniformity of cabins within given camp, and variation in size between camps.

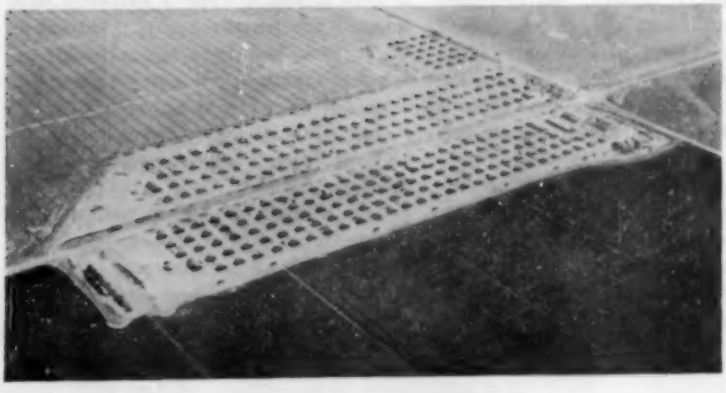


Table 2—Number of Surveys, Cultures, and Families by Type of Subcamp Fresno County, 1952–1953

		Type of Subcamp by Plumbing Inside of Cabin		
		1	2	3
	Total	Faucet and Shower and/or Toilet	Faucet Only	None
Number of subcamps	123	40	35	48
Number of subcamp surveys	279	77	78	124
Number of surveys per subcamp	2.3	1.9	2.2	2.6
Number of cultures obtained	6,111	985	688	4,438
Average number of cultures per survey	21.9	12.8	8.8	35.8
Number of positive cultures	296	16	21	259
Per cent Positive	4.8	1.6	3.0	5.8
Number of families	2,707	472	305	1,930
Number of positive families	244	12	19	213
Per cent Positive	9.0	2.5	6.2	11.0

Source: State of California, Department of Public Health, Special Study Records.

prevalence rates increased markedly as plumbing facilities became more primitive in the subcamps. Rates of 1.6, 3.0, and 5.8 per cent were observed in Types 1, 2, and 3 subcamps, respectively.

The magnitude of the child population was the first factor considered. It is to be noted in Table 2 again, that the Type 3 subcamps provided the greatest proportion of total cultures. This is a reflection of their larger child populations. However, analysis showed that there was an equal chance of finding infected individuals in small and large subcamps of one type. Hence, the higher rates observed in the Type 3 group could not be explained on this basis.

Seasonal patterns were generally the same for each subcamp type (Table 3). The peak occurred in October–November with a drop to a low point in February–March, and an apparent increase in April. The numbers of cultures collected in the three types were fairly proportionate during each season. Hence, differences in prevalence rates could not be accounted for by disproportionate seasonal sampling. Similarly, other factors such as persons per household, persons per toilet, and persons per shower were examined and found not to be significantly associated with Shigella prevalence in this situation.

On the basis of these data from the original 70 camps, the 26 having only a Type 2 and a Type 3 subcamp were selected for further study. A total of 58 surveys had been made in the 26 selected camps, each survey providing a paired observation on both subcamp types. Thus 58 Type 2 subcamp surveys and 58 Type 3 subcamp surveys were made available.

The shower and toilet facilities for each pair of subcamps were communal and used by all occupants of the camp. Housing, flies, garbage, and other environmental factors were comparable for both Types 2 and 3 within a given

Table 3—Total and Positive Shigella Cultures by Type of Subcamp and Season Fresno County, 1952–1953

Season	Type of Subcamp								
	1			2			3		
		Positive			Positive			Positive	
	Total Culture	Number	Per cent	Total Culture	Number	Per cent	Total Culture	Number	Per cent
Total	985	16	1.6	688	21	3.0	4,438	259	5.8
October-November	205	10	4.9	162	7	4.3	1,426	95	6.7
December-January	332	4	1.2	242	10	4.1	1,395	88	6.3
February-March	251	1	0.4	161	1	0.6	1,011	37	3.7
April	197	1	0.5	123	3	2.4	606	39	6.4

Table 3a—Total and Positive Families by Type of Subcamp and Season Fresno County, 1952–1953

Season	Type of Subcamp								
	1			2			3		
		Positive			Positive			Positive	
	Total Families	Number	Per cent	Total Families	Number	Per cent	Total Families	Number	Per cent
Total	472	12	2.5	305	19	6.2	1,930	213	11.0
October-November	103	7	6.8	78	6	7.7	625	81	13.0
December-January	161	3	1.9	99	9	9.1	614	71	11.6
February-March	120	1	0.8	71	1	1.4	416	29	7.0
April	88	1	1.1	57	3	5.3	275	32	11.6

Source: State of California, Department of Public Health, Special Study Records.

camp. Each season is equally represented for both types. In this sense, the seasonal effect can be considered as controlled. Similarly, persons per shower and persons per toilet and other communal environmental factors are matched. This represents proportionate sampling between the two subcamp types according to the extraneous sources of variation.

In Table 4 are listed the average values of six variables for each subcamp type. "Percentage of faucets inside" is based on the total camp populations and, hence, must be the same for both. The average number of persons per household is approximately the same for the

Table 4—Average Values of Six Variables by Matched Subcamps Fresno County, 1952–1953

Variable	Average Value	
	Type 2 (Inside)	Type 3 (Outside)
Per cent total camp population with faucets inside cabins	14.3	14.3
Average number persons per household	6.1	6.0
Persons per faucet	6.1	9.2
Persons per shower	21.8	21.8
Persons per toilet	10.9	10.9
Child population under 11 years	6.9	61.2

Table 5—Summary of Observations on Matched Subcamps Fresno County, 1952–1953

	Type 2	Type 3
Subcamps	26	26
Subcamp surveys	58	58
Cultures	245	2,147
Positive for Shigella	3	127
Per cent positive *	1.2	5.9
Average prevalence rate †	1.1	5.3

* The difference between the two rates is statistically significant with $p < 0.05$.

† The difference between the two rates is statistically significant with $p < 0.001$.

Source: State of California, Department of Public Health, Special Study Records.

two types. In the "inside" group (subcamp Type 2) faucet ratio is determined by persons per household, since each household has a private (inside) faucet. Showers and toilets being communal, the ratios are the same for both "inside" and "outside" groups. The average number of children under 11 years per subcamp is seen to be widely different for the two groups. However, as noted above, there is little indication that positivity rates were affected by the child population size. Typically there were no physical separations between the subcamp types in the 26 selected camps. Cabins with inside faucets were generally scattered in the camp. There is little, if any, segregation between children of families living with either type of plumbing facility.

Table 5 shows the results of the 58 surveys in the 26 camps. One and two-tenths per cent of the cultures taken in households with inside water faucets were positive for Shigella, whereas five times as many (5.9 per cent) of the cultures taken in households with outside water faucets were positive for Shigella. Where an "average prevalence rate" (obtained by averaging 58 rates for each subcamp type) is calculated, the comparison is even more significant, and the probability of as large a difference occurring by chance is less than once in 1,000 (Figure 2—Matched Subcamps).

Discussion

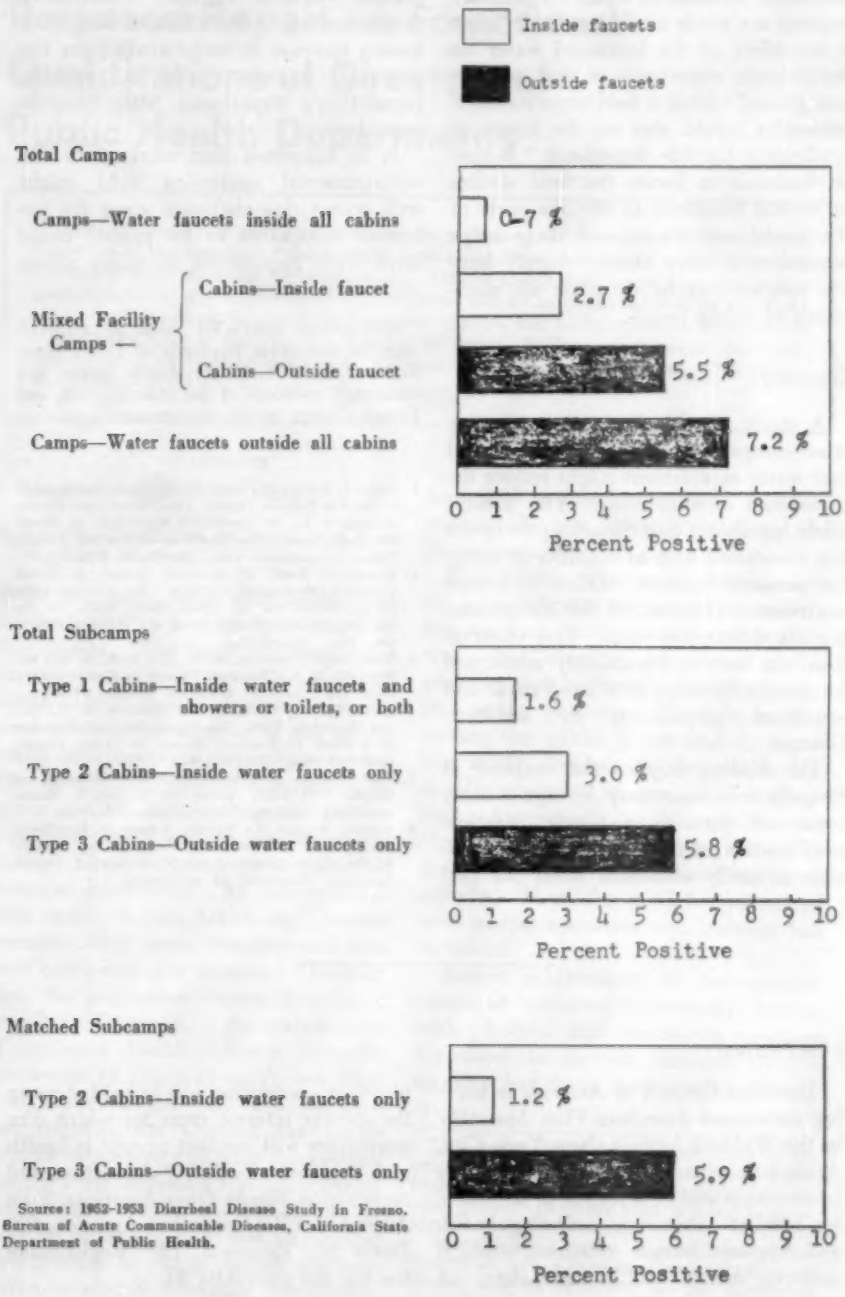
Water has been considered classically as a vehicle for the transmission of certain pathogens to man. Watt first clearly expressed the idea that water, even though it might be "below standard," could act as a diluent and assist in the reduction of intestinal infections when used for personal hygiene purposes.[5]

Data from the 1950 Fresno County, Calif., diarrheal disease studies in migratory farm labor and "fringe" area groups crudely implied that the amount of water available for personal hygiene may have influenced the prevalence rates for the specific pathogen, Shigella.[2, 3] This concept was then examined by Stewart, McCabe, Hemphill, and DeCapito[6] in a fixed rural and semirural population in southern Georgia. They also found that infection rates were highest where water was least available for personal hygiene. Concurrently with the work in Georgia, the study just described was carried out in Fresno County, Calif., to define more clearly the suggested effect of water availability on the prevalence of Shigella infections in migratory labor camp populations.

The California and Georgia studies on this concept represent organized attempts to isolate some of the elements of environmental sanitation and personal hygiene, and begin to evaluate them in order of preventive importance for a particular disease entity—in this case, shigellosis. Only by defining such fundamentals can environmental health programs be brought to maximum efficiency.

The hypothesis, however, remains to be critically tested in the field. We submit that herein lies a challenge to our colleagues in housing, sanitation, and sanitary engineering. Given a human community divided into two com-

Figure 2—Shigella Positivity Rates by Water Availability


Inside faucets
Outside faucets
Total Camps
Camps—Water faucets inside all cabins
Mixed Facility Camps —
Cabins—Inside faucet
Cabins—Outside faucet
Camps—Water faucets outside all cabins
0.7 %
2.7 %
5.5 %
7.2 %
0 1 2 3 4 5 6 7 8 9 10
Percent Positive
Total Subcamps
Type 1 Cabins—Inside water faucets and showers or toilets, or both
Type 2 Cabins—Inside water faucets only
Type 3 Cabins—Outside water faucets only
1.6 %
3.0 %
5.8 %
0 1 2 3 4 5 6 7 8 9 10
Percent Positive
Matched Subcamps
Type 2 Cabins—Inside water faucets only
Type 3 Cabins—Outside water faucets only
1.2 %
5.9 %
0 1 2 3 4 5 6 7 8 9 10
Percent Positive

Source: 1952–1953 Diarrheal Disease Study in Fresno, Bureau of Acute Communicable Diseases, California State Department of Public Health.

parable groups, into one of which known additional amounts of water for personal hygiene are made easily available, what is the effect of the increased water on the Shigella experience of that population group? Such a field experiment, if successful, could also set the limits of application for this hypothesis. It may be desirable to locate the field studies in several situations in various parts of the world and to expand their scope beyond shigellosis alone. Surely here are speculations to stimulate all disciplines of public health.

Summary

A study of shigellosis in migratory labor camps in Fresno in 1950 suggested that water as a diluent might reduce the prevalence of shigellosis. The present study has shown that Shigella prevalence was associated with availability of water for personal hygiene. Other measured environmental variables did not account for the differences seen. This observation has been independently confirmed by similar findings in a fixed rural and semirural population in southern Georgia.

The finding implies that control of Shigella infections may be significantly improved through a single practical modification of the environment—provision of easily accessible water for personal hygiene. Proof of causative association requires critical, quantitative determination of the effect, if any, of a known increase in water availability for personal hygiene upon a suitable population's experience with Shigella organisms.

It is suggested that workers in the environmental sanitation field might well accept this challenge since the potential knowledge to be gained could have wide application in many places around the world.

ACKNOWLEDGMENT—We wish to acknowledge the assistance especially of James Watt, M.D., of the U. S. Public Health Service and other staff members of the federal, state, and Fresno County health departments.

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Film Festival

The Film Council of America is holding the second American Film Assembly in the Waldorf Astoria, New York City, April 4–8. During the festival 16 mm productions will be screened in 25 different subject categories, including health and hygiene, human relations, medical sciences, mental health, and safety. A film user's workshop will be held. Among the specific interest areas for which film counselors will conduct groups is health and hygiene. Further information and registration blanks from American Film Assembly, Film Council of America, 600 Davis St., Evanston, Ill. Registration fee for the assembly, $4.

Proposed Report on Educational Qualifications of Directors of Public Health Departments

This is a provisional report published at the request of the Committee on Professional Education of the American Public Health Association before transmittal to the Governing Council in order to permit the members and Fellows of the Association to review it and to offer criticism and suggestions. All comments will be carefully weighed by the Committee on Professional Education and accepted changes will be incorporated in the report before presentation to the Governing Council for action. Address comments to: Secretary, Committee on Professional Education, American Public Health Association, 1790 Broadway, New York 19, N. Y.

I. General Scope of the Field

A. Specific Contribution to Public Health by Workers in this Field

It has long been established that public health is a primary concern of government. The legal requirement of the appointment of a public official as health officer, health commissioner or, more pertinently, director of the public health department, is generally accepted. The accomplishments of the health director and his associates in the prevention of sickness and in increasing the average life expectancy are a matter of common knowledge. As progress has been made in the health and related sciences, other more complex problems have come into prominence. These include the prevention or amelioration of long-term illnesses and the maintenance of optimum health. Many scientific discoveries of practical application have been made in the past few decades. Concurrently, the demand for health services to prevent and treat disease and disability has increased and undoubtedly will continue to do so. The field of research offers opportunities for greater participation to public health workers, particularly in determining the application and evaluation of new methods, equipment and drugs, technics, and procedures.

The health department continues to be a significant instrument of society for meeting public health responsibilities. The director, by virtue of his position and leadership qualities, occupies a key position. His role in promoting the public health and in assuring health services to the people has rapidly expanded in scope and complexity. Accordingly, opportunities for challenging and constructive service in the field of public health have increased rapidly. Thus, the need for personnel with special education and training has increased.

Recent achievement in the maintenance of optimum community health, both physical and mental, in counties organized to provide full-time health services has been encouraging during

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

This proposed report is a revision of the Report on the Educational Qualifications of Health Officers approved by the Governing Council on November 13, 1946.

recent years. The method used has been to make available to as many persons as possible needed health facilities and services. This has required careful study, evaluation, planning, and promotional effort by the director of the health department. As chief of the diagnostic public health team concerned with community health status, he keeps currently informed regarding the specific health and disease pattern of his community and its relationship to various influencing factors peculiar to each community, such as population characteristics, economic and political conditions, employment and social customs. He is also currently informed of all available health facilities and services in the community as provided by official agencies, voluntary agencies, hospitals, nursing homes, and medical, dental and nursing groups, as well as others. The objectives of these organizations, also their activities, effectiveness, and use by the public are considered. Through study, evaluation, and analysis of available factual information, the director of the health department determines the unmet health needs of the community. He develops practical plans to satisfy these needs through better utilization of existing facilities and promotion of such additional services as may be required. In successfully carrying out his plans the director utilizes such personal qualities as understanding, reasonableness, patience, leadership, and the ability to integrate services provided by the health department with those of other health agencies.

The over-all responsibilities of the health director may vary in different public health agencies in accordance with local custom or legal authority. In general, however, he is the administrative head of the health department and directly responsible for all the activities of the agency. He is assisted by and directs his staff in these activities.

The organization and administration of special programs of medical care has met with increasing acceptance as a responsibility of official health agencies. Health departments are not infrequently responsible for the treatment of certain acute communicable dieases, tuberculosis, and venereal diseases. In other instances, they are also responsible for the treatment of persons with psychiatric disorders, physical handicaps, dental defects, and malignant tumors, and less frequently, for certain programs involving services to alcoholics and to persons with heart disease. There is an increasing tendency to place in health departments responsibility for professional direction and supervision of general programs of medical care for needy persons on the basis of cooperative arrangements with welfare departments and to use health department directors as consultants to other public or voluntary agencies which provide medical care and rehabilitation services. Furthermore, as a result of governmental participation in local hospital construction and administration, the health department director has been called upon to assume new responsibilities. These have been increased also by participation in planning for medical disaster relief and by problems associated with atmospheric pollution and radiological health hazards.

The health director's responsibilities in the broad field of medical care, as well as in specific activities, are likely to increase in the future rather than decrease. Present trends substantiate this view.

B. Future Outlook

It is recognized that there should be coverage of every population and area unit of our nation with competent, full-time local health services. Both the American Public Health Association and the American Medical Association have declared in official pronouncements their agreement with this prin-

ciple. Continuing progress in the accomplishment of this objective may be expected. As of July, 1953, 2,189 counties in the United States were organized to receive full-time health services as single county units (686) or as a part of a local health district (756 counties served) or a state health district (747 served). Services provided under the state health district type of unit are generally conceded to be less satisfactory than those of the local unit. Despite the progress made in bringing full-time health services to the public through new health departments, the number of counties in the United States with no provision for county-wide full-time coverage continues to be substantial. Moreover, as of July, 1953, the position of health director in over one-third of the counties organized for full-time health services was vacant or temporarily filled by the director of a neighboring health department. Of the public health administrators directing full-time health services for all types of health units (city, county, and district), about four-fifths were doctors of medicine, of whom 37 per cent also had postgraduate degrees in public health.

Most full-time local health directors are employed by cities, counties, and combinations thereof. In some states health directors employed wholly or in part by state departments of health are assigned to local areas to render direct service. Many individuals qualified as health directors are employed directly by federal and state agencies and by voluntary organizations. The establishment of new subdivisions within certain state and large county and city health departments to develop and supervise programs or provide services in accident prevention, cancer control, general nutrition, mental health, diabetes control, heart disease, and control of radiological hazards gives reason to believe that the future will show expansion into new fields as well as intensification of many existing activities.

As previously indicated, the need of existing official health agencies for qualified health directors is greater than the available supply despite a substantial increase in salaries and the wider utilization of fellowship grants for postgraduate training in public health available to physicians. The establishment of additional full-time local health departments and the expansion of services now being provided by health departments point to the many opportunities for physicians to apply their skills to community health problems. To many physicians there is greater personal satisfaction in this specialized medical practice than in the private practice of medicine. The practice of public health as a medical specialty was recognized in 1948 through establishment of the American Board of Preventive Medicine and its approval in 1949 as a Medical Specialty Board by the Council on Medical Education and Hospitals of the American Medical Association. As of July, 1954, approximately 1,120 physicians had been certified by the board.

Opportunities for public health trained personnel exist in related agencies. These include medical care programs conducted by welfare departments, by labor unions or agencies created pursuant to labor-management contracts, and by the various prepayment medical, surgical, and hospital insurance plans. In addition, the World Health Organization activities and the international health programs of our federal government are in need of qualified personnel. The Armed Forces need officers qualified in the field of public health practice for liaison with civilian health agencies and for preventive medical services as a function of military government. Many hospitals want persons with a public health background as administrators and sev-

eral university training programs are trying to meet this need. Also, the voluntary health organizations are seeking qualified public health personnel. Educational institutions are finding that the public health trained person has administrative skills and an orientation which makes him a useful administrative officer, particularly for student health services.

II. Functions of Health Directors and Career Opportunities

A. Functions

The health director has an over-all responsibility to the public in matters affecting community health. He is concerned with community diagnosis and with the development of programs for the maintenance of health, the control of disease, and the evaluation of these programs. Many functions are defined by statute. These include the power to enforce sanitary laws and regulations, the responsibility for the preparation of budgets and for the proper expenditure of funds. Other important functions are the interpretation of public health activities to governing bodies; coordination of health department activities with those of official and voluntary agencies, private physicians, dentists, and allied professions, and community hospitals; and the assumption of leadership in the community in all matters pertaining to health.

Leadership is a particularly great responsibility and opportunity. It denotes an ability to evaluate health problems and services, to identify unmet needs, and to stimulate the entire community in planning desirable developments in its health services. This calls for statesmanship and administrative competence of the highest order.

Besides performing administrative duties and exercising leadership, the health director takes part in specific activities for disease prevention and control, using technical procedures that call for a high degree of medical and sanitary knowledge. In small organizations he may perform all or numerous professional, clinical and other technical functions. In larger organizations the health director may not personally render direct service, but always he guides, stimulates, coordinates, and evaluates the work of his subordinates. To do this he must exercise technical skill and professional judgment.

In general, the health director must have special training in order to assume effective responsibility for the proper development of the official agency's activities. His position is such that he has broad opportunity for special studies and research in public health.

Services to be provided by local health departments have been described in detail and published as an official statement of the American Public Health Association.* Based primarily on this statement, they may be summarized briefly as follows:

1. Recording and Analysis of Health Data—Such data include essential facts about births, deaths, reportable diseases, and other disability; characteristics of the population; and the availability, adequacy, and use of health personnel and facilities.

2. Health Education and Information—The public must be informed and educated to make the community health program, including the work of private practitioners, effective. Many educational channels must be used and the people must develop a real sense of personal responsibility and participation. In cooperating with professional societies, the health department can also carry on useful educational programs for local members of the health professions.

3. Supervision and Regulation—Necessary measures must be taken to promote a healthful environment. Involved are the assurance of safe food, milk, and water supplies; the control of pollution (air, water, and waste disposal), housing, nuisances, and radiological

* The Local Health Department—Services and Responsibilities. A.J.P.H. 41:302–311 (Mar.), 1951.

health hazards; the prevention of accidents, and occupational diseases; and the regulation of hospitals, nursing homes, and other health facilities. Issuance of regulations, inspection, and licensure are all needed.

4. Provision of Direct Environmental Health Services—In some areas the health department undertakes insect and rodent control, construction of privies, etc., as a direct service.

5. Administration of Personal Health Services—Some needed services are provided directly to individuals, families, and other groups. Personal cooperation based on sound health education is most essential here. Such services include:

a. Communicable disease control, including tuberculosis and venereal disease; also malaria, hookworm disease, etc., where necessary.

b. Maternal and child health, including supervision of health of the school child, care, and rehabilitation for various types of crippling conditions in children, and dental care.

c. Long-term illness control. The early discovery and amelioration of such conditions as heart disease, cancer, diabetes, and mental disorders through education, group case-finding procedures, rehabilitation, and other care facilities.

d. Public medical care for population groups for which community responsibility is accepted.

e. Mental health.

f. Advisory health maintenance services for adults.

g. Diagnostic aids to physicians.

h. Disaster relief planning.

6. Operation of Health Facilities—One or more health centers, or facilities providing equivalent services, and in some cases hospitals, may be operated. The principles of business management are involved, including budgeting, audit, and control of funds and personnel management and training.

7. Coordination of Activities and Resources—The local health department has the general responsibility of providing effective leadership in meeting all types of community health needs. A primary task should be to encourage the fullest possible coordination of work of the various official and voluntary health agencies so as to avoid unnecessary duplication and overlapping both in types of activity and geographical coverage, and to assure efficient and economical administration of both public and private funds for health.

8. Research—The study of morbidity and mortality, evaluation of control measures, application of new methods of control, and the testing of new drugs, technics, and administrative procedures provide stimulation and opportunity for advancing public health knowledge.

B. Career Opportunities

The expanding scope of public health assures increasing opportunities for professional satisfaction to physicians interested in community health. Moreover, greater use is being made by public health departments of qualified nonmedical administrators * who are responsible in general for activities not requiring medical-public health knowledge or judgment, or physician prestige. Such individuals are invaluable and have proved their worth by relieving the medical health director of many administrative details.

Assistance is available to physicians for training in public health. Fellowship grants for both graduate instruction in a school of public health and field experience may be obtained—usually through a state department of health.† As in the other medical specialties, adequate preparation is necessary before assuming independent responsibility.

Following such introductory training, the career public health physician may obtain practical experience by service as full-time assistant to the director of a large local health department or state health district. He may work under supervision as health director of a smaller health unit with a limited staff. He may join the staff of a state or very large local health department to assist a

* Educational and Experience Qualifications of Administrative Personnel (nonmedical) in Public Health Agencies. Reprints of the report as approved by the Governing Council of the American Public Health Association are available from the Association.

† A list of approved residency field training areas, including stipend, is published annually in the "Internship and Residency" number of the Journal of the American Medical Association.

program director, at a level usually below the status of the assistant program director, if he has no additional specialized training.

From such beginning positions, advancement depends on personal desires, demonstrated proficiency, and ability to assume greater responsibilities. In addition to service in progressively more responsible and remunerative local, state, or federal generalized public health administrative positions, these agencies offer service to administrators of specialized health services,* such as communicable disease control, tuberculosis control, cancer control, maternal and child health, industrial hygiene, and mental hygiene.

In the federal services and in the majority of states and local jurisdictions, health department appointments are based on merit, utilizing the competitive civil service examination as a screening procedure. Benefits under such merit systems include annual vacation leave, sick leave with pay, pension rights, and protection from arbitrary dismissal.

III. Educational and Training Background of Directors of Public Health Departments

It is considered desirable that directors of public health departments be competent in the disciplines of both the natural and social sciences, the humanities and medicine, as well as public health before assuming full responsibility and direction of the broad and complex functions of a health department. Accordingly, the requirements set forth in A and B which follow are essential.

A. Premedical and Medical

The preliminary educational background for the position of director of the health department should be as follows:

1. Broad fundamental training in both the sciences and the humanities.
2. Graduation with a degree of doctor of medicine from a medical school of recognized standing.
3. Internship of at least one year in an approved hospital.
4. Eligibility for medical licensure in the state where service is to be rendered.

B. Public Health Education and Field Experience

Graduate education and field training in public health for the position of director of a health department should include the following, preferably in the order suggested.

1. Preliminary orientation and experience of at least six months of field experience in general public health practice which included supervised planned instruction, observation, and active participation in a comprehensive, organized, over-all public health program as carried out by the public health department and by other official and voluntary health agencies.

2. Completion of a program of study leading to a degree in public health of not less than one academic year in a university approved by the American Public Health Association.† The program of study should cover: general principles of administration and the application of such principles to both public administration and public health administration; biostatistics; environmental sanitation; epidemiology; health education; public health nursing; physiological hygiene; the socioeconomic aspects of health and disease; organization of medical care programs under public and voluntary auspices; and the social or behavioral sciences as affecting public health practice.

3. At least 18 months of closely supervised

* Educational Qualifications of Medical Administrators of Specialized Health Activities. Reprints of the report as approved by the Governing Council of the American Public Health Association may be obtained from the Association.

† A list of the institutions accredited by the American Public Health Association for the degrees of doctor of public health and master of public health (diploma of public health in Canada) is published annually in the American Journal of Public Health. Reprints of this and of the criteria for accreditation are available.

practical experience in general public health practice is highly desirable before the graduate in public health assumes independent and full direction of a health department.

For certification consideration in public health by the American Board of Preventive Medicine the residency requirement stipulates at least two years of field experience in general public health practice, inclusive of the preliminary orientation and experience mentioned in 1 above and of similar type.

C. Continuing Education and Training

Requirements in A and B above are basic for meeting the responsibilities of independent direction of a health department. However, it is recognized that continuing education is essential. This may be obtained through participation in formal courses, by reading, by conference attendance, by informal contacts, and through any other means that may be available in order to keep abreast of new developments. As the health director is given or assumes new responsibilities, such as administration of medical care programs, housing, hospital administration, atmospheric pollution control, medical aspects of disaster relief, and radiological hazard control, he must acquire new knowledge and skills.

Public health and related fields are concerned with the application of scientific knowledge through social organization in order to meet the needs of society. For this to be done with maximum success requires an adequate knowledge of social organization, the cultural, and psychological factors influencing human behavior, and the historical trends most pertinent to public health and medical care as a social institution. This represents a relatively new and rapidly growing body of knowledge which is finding its way increasingly into the curriculum of schools of public health and medicine. Those who have had little opportunity to obtain a background in these areas would do well to acquire such knowledge.

Full-time practical experience is an important part of the education of the director of a health department. It is so important that some physicians with many years of full-time experience in general public health practice have achieved outstanding success despite the lack of formal graduate training in public health. They should be considered as qualified for the position of director of a health department. It should be emphasized, however, that an exception to the requirements of a graduate course and supervised field training should be made only if the candidate, in addition to many years of experience, has actually demonstrated unusual ability as a public health administrator.

Professional recognition may now be obtained by public health physicians who qualify for certification by the American Board of Preventive Medicine as possessing special knowledge in the field of public health. Although it is not required that the director of a health department be a diplomate, certification by this specialty board is highly desirable as evidence of his special qualifications in the field of preventive medicine and public health. In some states board certification is required for key positions with a high degree of responsibility.

IV. Personal Qualities

The director of a health department should possess the qualities of personality and character necessary to insure the successful prosecution of his scientific and administrative duties. These include such qualities as personal integrity; the ability to establish and maintain favorable relations with the public, professional organizations, and

his own personnel; creative ability; sound judgment and good sense; and the will to serve honestly and industriously at all times, subordinating his own desires to the best interests of the community.

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Consultants:
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WILSON G. SMILLIE, M.D.

The subcommittee assisting with the preparation of this report, to whom this Committee on Professional Education expresses grateful appreciation, consists of:

V. A. VAN VOLKENBURGH, M.D., Chairman Referee
ALFRED L. BURGDORF, M.D.
JAMES A. CRABTREE, M.D.
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BERWYN F. MATTISON, M.D.
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MACK I. SHANHOLTZ, M.D.
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DANIEL BERGSMA, M.D.
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Anniversary of Water Fluoridation

Grand Rapids, Mich., recently celebrated the 10th anniversary of continuous fluoridation of its municipal water supply. Since 1945, when Grand Rapids is said to have become the first city in the world to fluoridate its water supply, more than 20 million people of 1,041 communities in the United States have become consumers of fluoridated water.

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The Rising Tide of State Control of Radiation Emitters

Since the initiation of the Manhattan Project in World War II, discussion has persisted regarding the effects of radiation upon man and upon plant life. For over 10 years the question of the responsibility of health officers at various levels of government in this expanding area of use has had desultory debate.

During no small part of this past decade health officers in general veered away from assuming a major responsibility in the radiation field, either because the field was unfamiliar in nomenclature and in phenomenon or because it was tacitly assumed that the central responsibility for this rapidly developing field lay primarily in the federal government. In spite of the fact that it was early apparent that installations both for production and for use were being constructed in almost every state of the Union, the hope that the state and local health officer would not have to concern himself with this difficult problem delayed the initiation of steps for control.

During all this time the Atomic Energy Commission emphasized the fact that radiation control would ultimately have to be the joint responsibility of the federal government, as well as local governments. In preparation for these tasks the Atomic Energy Commission developed innumerable studies of the phenomena involved in radiation emission and of the regulatory processes which might ultimately be shared between the national and the state agencies.

Gerald L. Hutton, the administrative officer for the Isotopes Division of the Atomic Energy Commission, has recently elaborated the considerations in the problem of protection against radiation hazards. He sets forth what he conceives to be the division of responsibility at the various governmental levels. He concludes that the problem of control is essentially a mutual one of the agencies concerned, at least for a good many years to come while the Atomic Energy Commission controls certain important features of the industry. Mr. Hutton's consideration of the problem, however, is restricted primarily to the use of radioisotopes rather than to reactor production facilities.[1]

Not so long before the appearance of Mr. Hutton's analysis of the problem, Dr. Stanley H. Macht and Philip S. Lawrence presented before one of the national scientific societies the results of their National Survey of Congenital Malformations

Resulting from Exposure to X-radiation. Their material unfortunately is still unpublished, but it is pertinent to this comment that in their comparative study of radiologists and a control group of physicians ordinarily not exposed to radiation, they find that "small prolonged doses of radiation produce abnormalities in humans. The differences between exposed and unexposed groups show a consistent trend of higher rates of abnormality in the exposed group. . . ." Their findings, tentative as they are, give uncomfortable additional verification of the fears long expressed by the geneticist Muller. Macht and Lawrence, of course, point out that many variables come into play in this most complex biological problem.

During the past year some of the largest of the states in this country have begun to take official notice of these problems of radiation and have undertaken to develop rules and regulations designed to protect both the user and the public in this field. The States of Pennsylvania and of New Jersey have recently formulated such requirements. The State of New York through its Health Department has issued rules and regulations which will become effective July 1, 1955, as a significant addition to the New York State Sanitary Code. The responsibility for the control in the State of New York will be divided among the State Health Department and the State Department of Labor in accordance with the historical precedents prevailing for some years in New York state.

Again, these states in the forefront are providing for controls in which the major emphasis has been on the use of radioisotopes rather than in the field of reactor production facilities. Inasmuch as this latter field is obviously headed for rapid extension, it is not too early for health department thinking to be directed toward the larger issue of the protection of both worker and the general public in the areas surrounding such production facilities, as for example, in the development of nuclear fission power. This is an area in which the Public Health Service could offer a great deal of leadership.

Fortunately, a large body of information for the health officer comes through the National Committee on Radiation Protection under the aegis of the National Bureau of Standards. The bureau has issued a number of handbooks which every health department should have, not only on file, but should review with care in preparation for its new responsibility. At this writing some 12 of these handbooks have been issued by the National Committee on Radiation Protection.

Of even greater significance has been the work of this same committee through its Subcommittee on the Regulation of Radiation Exposure. Part 4 of its Interim Report will soon be available and has a special pertinence to state and local regulatory agencies. It deals with proposed radiation control regulations and presents a pattern for guidance of the state agencies. The committee emphasizes wisely that "regardless of the division of responsibility, the important thing is to retain the maximum of uniformity in the technical details." The values which the committee proposes for maximum permissible doses are intentionally conservative so as to reduce the risk to the minimum. The committee does so in view of the unsatisfactory nature of much of the evidence on which judgments must be based, "coupled with the probability that certain radiation effects are irreversible and cumulative."

The pattern of regulation which the National Committee proposes is one which the states might review with great profit. Upon the base of this pattern the state health departments can build both rule and regulation, as well as personnel who can master the principles and the instrumentation essential to the administrative enforce-

ment of the rules. The radiation field is complex, but not so complex that its supervision cannot be undertaken and wisely pursued in the immediate future. One of the early chairmen of the Atomic Energy Commission provided perhaps the guiding rule for health departments in stating that "we must learn to live with radiation."

1. Hutton, Gerald L. Public Control of Radiation Emitters. Pub. Health Rep. 69, 12:1133 (Dec.), 1954.

Promoting Public Health Careers—A Dynamic New Development

Competition for the career services of intelligent young people is becoming increasingly acute. All of the public health professions have felt the impact of recruiting efforts made on behalf of industry and commerce, to mention only two of the active areas. Young men and women who do enter the health professions frequently represent a strong-minded remainder of those with a keen and persistent determination to serve the public good. The professions making up the health team have been significantly silent in this battle for the oncoming generation, except, of course, the effective recruitment programs undertaken on behalf of nurses.

Against this background it is gratifying to have released last month a comprehensive volume aimed at informing the high school and junior college age groups of men and women about the advantages and disadvantages of various health careers. In this way has come to fruition the project called "Operation Health Career Horizons" which grew out of the 1954 National Health Forum through the efforts of the National Health Council, with financial backing and other assistance from the Equitable Life Assurance Society of the United States. This Health Careers Guidebook has been prepared for and is being distributed to each of the secondary schools in the United States. It is intended for the use of the vocational counselor and for the information of young people wanting to know about health careers.

The volume represents a cooperative effort by most of the professional societies concerned to provide information to our youth and to help them assay for themselves the advantages and disadvantages of careers in the health services. An enthusiastic and competent group of advisers has developed an astonishingly clear and inviting "wide-angle" view of the entire health service field which provocatively sets forth the story, amply illustrated through words and pictures. In addition to the over-all view of the field, written in the language of the younger generations, there are pin pointed more detailed descriptions of 34 different categories of private and public health careers that include 150 separate positions. It is specially noteworthy that this material was not developed from the rather isolated viewpoint of doctors, nurses, or health educators, but it grew from a broad interprofessional base of vocational counselors, school administrators, and representatives from all the major health professions.

It can be expected that this effort, which has been carried out with the full cooperation of school administrators and vocational counselors, will stimulate a flood of inquiries to all kinds of health agencies and individuals. This is the point where actual and fruitful recruitment should begin. The professional agencies concerned, like the APHA, are already adapting their response to supplement the "briefings" so carefully prepared and to cultivate the interest which will be aroused.

Individual health workers need also to be aware of this new approach and to be ready with their best interpretation of the facts for young men and women who will be asking questions.

Meantime, the Journal congratulates those who have with such vigor and insight developed this sound recruitment method. It is an example par excellence of the kind of service which the National Health Council should be rendering to the public and the agencies. The backing in generous amount which it has had from the Equitable Life Assurance Society is heartily to be commended.

A Court Decision on Bathtubs in Dwellings

A recent circuit court decision in Baltimore, Md., has upheld the Baltimore City Health Department's regulation of March 11, 1954, which requires a bathtub or shower for individual dwelling units throughout the city, after January 1, 1956. Judge E. Paul Mason held that the regulation, adopted pursuant to the City Ordinance on the Hygiene of Housing, bears a direct relation to health and is valid and enforcible. The ordinance itself was upheld in the Maryland Court of Appeals in 1943, and an appeal has been taken on the bathtub decision.

The bathtub regulation provides that:

> Every dwelling unit shall contain within a room which affords privacy, a bathtub or shower in good working condition which shall be properly connected to both hot and cold water lines and to the public sanitary sewer or to an approved sanitary sewage disposal system. This regulation shall not apply to any two-story dwelling which contains not more than two dwelling units, provided there is at least one such facility available for the occupants of such dwelling. This regulation shall take effect January 1, 1956.

In the decision of the court it was stated that the view of the City Health Department, its medical consultants and its lay advisory committee on sanitation, and many other experts in the field of housing and health, both local and out of state, was that a dwelling unit in Baltimore in 1954 that does not have its own private bath facilities is unfit for human habitation and detrimental to the physical and mental health of its occupants.

Care and study had been given to the drafting of the 1954 regulations of which the bathtub requirement is one. In effect, they are revisions of a like series first promulgated in 1942 after there had been a community-wide awakening as to the public health risks of insanitary housing. The more recent experience of Milwaukee with a like bathtub requirement, and the Model Housing Ordinance of the Association's Committee on the Hygiene of Housing had been kept in mind; also the fact that the City Building Code had required a tub or shower in all new dwellings in Baltimore since 1927.

It will be interesting to watch the outcome of the review of this court decision in the Maryland Court of Appeals. It may well be that a bathtub regulation of the type under debate is long overdue in this country at the present time. Surely all people should have the opportunity for fundamental decency and privacy and health regulations should at least come up to the demands of present-day standards of cleanliness.

This action represents a contrast with the resolution said to have been sent to the President of the United States something over 100 years ago by the Cincin-

nati Academy of Medicine when it was announced that the first bathtub was to be installed in the White House. The academy warned the President that it was not healthful to remove all one's clothes at once. Now it is held to be public policy to require such a facility in even the lowliest dwelling.

The Court Decision on Bathtubs. Baltimore Health News (Nov.), 1954. Baltimore City Health Department.

(The Journal is indebted to Huntington Williams, M.D., commissioner of health, Baltimore City Health Department, for assistance in the preparation of this editorial.)

A Bouquet to Rex Atwater

Ordinarily it is the custom of the country to send flowers to people and to inscribe complimentary records after they have been adequately embalmed, before or after death! The Editor, without consultation with or permission of the Managing Editor, takes the liberty of breaking this hoary custom, by saying some nice, and truthful, things about a very much alive Atwater!

The occasion is the completion this month of 20 years of uninterrupted service in and to the Association by its Executive Secretary—a mild designation for a competent, courageous, and modest catalyzer of public health activity. Well concealed in an Executive Board minute is a recent recognition of this extraordinary service. The Editor feels the members of the Association have a right to join in congratulating themselves on having enticed this man into their service!

Atwater came to us in 1935 with a record already distinguished in public health: as a worker and teacher in China, at Harvard Medical School and School of Public Health, and as a commissioner of public health in Cattaraugus County. His impact on the Association has been more than equaled by his quiet influence on the development of public health practice in the country at large.

Blessed with a clear and logical mind, a directness of approach, a clarity of exposition and a sense of humor, he was heavenly endowed to cope with the multiple psychiatric problems of a voluntary association, its boards, committees, members, staff, and a recalcitrant Editor, who offers no apologies for this editorial. It is a myth that a man should not be told his worth until he cannot hear it—and enjoy it!

Committee on Eligibility

It is a pleasure to have this opportunity to report to the Governing Council on the constructive work of the Committee on Eligibility during the last four years under the chairmanship of Justin M. Andrews, Sc.D. The routines of this committee have been systematized and the pattern for carrying on its responsibilities greatly improved resulting both in savings of time and increased effectiveness.

During 1954 your Committee on Eligibility approved 924 applications for membership. In 1953 the corresponding number was 1,149 and in 1952 1,169.

The committee has met twice during this conference to consider for Fellowship the names of 162 applicants as published in the September issue of the American Journal of Public Health. Of these, five have not been approved by the various Section councils or by the Executive Board which appraises applications for Unaffiliated Fellowship, or by the Committee on Eligibility.

It is unanimously recommended by the committee that the remaining 157 applicants whose names have been placed before you be elected to Fellowship in the American Public Health Association. We believe that in the case of each individual the appropriate By-law provisions have been met and I may tell you that the qualifications have been reviewed in a highly systematic manner going back over a period of some months.

Last year the Governing Council approved 165 applicants and the year before 230. Apparently the number applying is becoming stabilized; we are not particularly concerned with the reduction because the quality remains high.

The committee also recommends that the Fellows whose names appear at the end of the printed list of Fellowship Applicants be added to the roster of Life Members.

During the past year we have been alert to the prospect of affiliation from additional state groups but none of the pending society affiliations has matured to the point where we are ready to present a request. Meantime, the directive of the Governing Council is being followed out in that it is clearly the goal to have a strong public health association in each state and territory of the United States and, as the Governing Council is aware, considerations have been given to liberalizing this process, still keeping it a meaningful relationship.

In accordance with our general custom, the Committee on Eligibility wishes to bring to the attention of the Governing Council the names of certain health workers in other countries whose accomplishments merit special recognition. The committee therefore recommends for Honorary Fellowship in the APHA the following individuals:

Professor Karl Imhoff, Germany
Dr. M. G. Neurdenburg, Holland
Rajkumari Amrit Kaur, India
Dr. Andrew Topping, England
Dr. H. C. Maurice Williams, England

In our opinion it is appropriate from time to time to recognize outstanding persons of this kind in other countries and thus to return some of the recognition which members and Fellows of the APHA have received from overseas. The Association can properly honor itself by honoring these persons of eminent distinction.

The Governing Council may wish to be reminded of how our present membership of 12,944 is made up. There are, previous to today's action, 2,855

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Fellows and 9,962 members. The Sustaining Members are 54 in number, the Honorary Fellows 40, and Affiliated Societies 33. During the last twelve months 924 new members have been elected, compared with 1,149 in the 12 months preceding. Our Life Members total 465.

The Health Officers Section still retains its pre-eminence in size with 1,821 members, followed in order by the Laboratory Section, the Nursing Section, and that on Health Education.

During the last 12 months the largest number of new members have asked to be identified with the Public Health Nursing Section, followed by those on Medical Care, Health Education, Health Officers, and Engineering.

It would seem that the membership and fellowship of the Association were in a healthy state during 1954. The Committee on Eligbility will do its best in the coming year within its power to maintain the quality as well as the quantity of this roster.

RODNEY R. BEARD, M.D.
Stanford University Medical School, San Francisco, Calif., Chairman.

Community Mental Health Services

The 1954 New York State Legislature passed the Community Health Services Act "designed to encourage the development of preventive, rehabilitative and treatment services through new community mental health programs and the improvement and expansion of existing community services."

The act provides for up to 50 per cent reimbursement, not exceeding $1 per capita, to local communities for providing any of the following mental health services:

a. Outpatient psychiatric clinics.
b. Inpatient psychiatric services in general hospitals.
c. Psychiatric rehabilitation services.
d. Consultant and educational services to schools, courts, health, welfare, and other appropriate agencies.

At the state level administration of the act is the responsibility of the State Department of Mental Hygiene. A division of Community Mental Health Service has been created for this purpose under the leadership of assistant commissioner, Robert C. Hunt, M.D.

At the local level the act requires the creation of a local mental health board of nine members, seven appointed by the chief executive officer of the city or county, the other two the city or county public health and public welfare commissioners. Two of the appointive members must be active practicing physicians. A mental health board may be created by any city of 50,000 population, or more, by a county, or by two or more counties jointly.

The local board will receive reimbursement only if its plans show "a reasonable extension of services and facilities above the existing level." Its chief executive officer must be a psychiatrist. As of December, 1954, six communities had established mental health boards and Westchester County and New York City had submitted programs asking for state aid.

Committee on Professional Education

It seems pertinent to repeat occasionally the responsibilities delegated to this committee and to relate its activities to those responsibilities. The Association By-laws state that:

> The Committee on Professional Education shall be responsible for carrying out research and the development of standards for professional education and training in public health work and shall perform such other functions as may be delegated to the Committee by the Governing Council with the view of maintaining professional qualifications of high standard.

The committee's current programs include:

Accreditation of schools of public health
Development of statements on educational qualifications of personnel in the various public health disciplines
Development of field training methods and standards
Conduct of the Professional Examination Service
Development of a recruitment program
Studies of public health salaries

Improving the quality of public health personnel is the essence of the committee's activities. Whether it be recruitment, salary studies, educational qualifications, or professional examination services that are under discussion, the goal is always better public health practioners and thus better public health practice at the community level.

Recruitment Is the Number 1 Problem—The committee is happy to report some progress toward a point of attack on this problem of finding and enlisting sufficient high quality persons. Among the subcommittee's activities is a plan to organize study committees to consider the problems of recruitment by individual disciplines. The first such group will analyze the factors affecting the recruitment of medical personnel. It will try to find what factors have influenced individuals to enter the public health field and, if possible, the influences that have led some to leave the field. A preliminary meeting has drafted an outline for a pilot study and sources of funds are being explored.

The first report of the newly organized subcommittee outlines certain underlying factors affecting recruitment adversely. Because of the general interest in this subject, it might be well to mention here a few of these factors:

Merit system red tape in appointment. While it is agreed that merit systems are desirable, frequently the slowness of merit system machinery results in the prospective recruit accepting employment elsewhere. Exploration is needed to determine methods of overcoming this defect without destroying sound merit system principles.

A lack of understanding of who in public health should recruit. It has frequently been left as a job for someone else to do.

Academic requirements for admission to schools of public health. The academic requirements of the schools preclude some good potential candidates whose training is in other fields, while at the same time permitting the admission of some misfits who meet the academic requirements.

A general lack of knowledge on the part of citizens of the work of a health department and the specific activities of various members of the public health team.

The frequent lack of knowledge on the part of public health workers themselves of the content of public health and therefore an inability on their part to describe public health to others.

Lack of adequate provision for public health experience in undergraduate training in the professions represented in public health. Much work needs to be done in the undergraduate schools in order to inform the students in such schools of the content of public health.

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The pamphlet, Public Health—A Career with a Future, has been brought up to date and is again being distributed. In this connection it is relevant to mention Operation Health Career Horizons of the National Health Council, of which the Association is a member. This project is being carried out by the council with the aid of one of its sustaining members, the Equitable Life Assurance Society of the United States. Three publications are being produced for distribution—"a concise, all-in-one-package guidebook for teachers and vocational counselors; a brief leaflet for young people themselves and their parents; and a series of health-career posters for school and community use." Thus, the nation's 7,000,000 high school students can know something about the many careers in health open to them.

Field Training—The interest in complementing academic training with actual experience in the field and the methods of getting that experience most usefully and economically has gained definite momentum in the last several years. With the organization of the American Board of Preventive Medicine, which eventually will require a two-year residency for certification, the need for field training programs for public health physicians became urgent. Therefore, the first conference under the sponsorship of the Association was held in 1950 with the cooperation of the University of Michigan School of Public Health. Other field training conferences followed, one for health educators in 1952, and for statisticians in 1953.

In June of this year a national conference on field training for public health dentists was held in New York, sponsored jointly by the Committee on Professional Education and the Dental Health Section of the Association, and the Council on Dental Education of the American Dental Association with financial support of the W. K. Kellogg Foundation. The participants included representatives of schools of public health, the Public Health Service, state health departments, local field training areas, the American Dental Association, the American Association of Public Health Dentists, the American Board of Dental Public Health, the Kellogg Foundation, and the Association. This 1954 conference thus represents the fourth in which the Association through its Committee on Professional Education was involved.

An earlier nation-wide working conference on field training was that for sanitation personnel sponsored by the University of North Carolina and the W. K. Kellogg Foundation in 1950.

Reports on Recommended Educational Qualifications—Statements on educational qualifications now cover 17 public health disciplines. One of these—a proposed report on qualifications of physical therapists—will be presented to the Governing Council for approval during this week. Six of the reports are in process of revision: qualifications of health officers, community health educators, sanitary engineers, sanitarians, nutritionists, and industrial hygienists. There is steady demand for reprints of the educational qualifications reports; in fact more than 3,000 copies are distributed annually.

A subcommittee has been appointed to explore the educational qualifications needed by public health dental hygienists. In the past several years many changes in the education of dental hygienists have come about. The curriculums of the schools, which have increased from 17 to 31, now have greater uniformity both in content and quality. The Council on Dental Education of the American Dental Association has completed its first survey of schools of dental hygiene and has established a program for accreditation of those schools.

Salary Study—A reorganized Subcommittee on Salary Study is exploring

a proposed plan for presenting current salary data and making such data available to health authorities within a short time after collection. The Public Health Service is assisting in this effort. In the meantime, the Public Health Service, in cooperation with the Association of State and Territorial Health Officers and the APHA, is collecting data on salaries of local public health workers as of August, 1954.

Professional Examination Service—The Professional Examination Service has developed for the National Board of Veterinary Medical Examiners an examination for states in licensing veterinary physicians. A pharmacy licensing examination, developed at the request of the State of Connecticut and with the approval of the National Association of Boards of Pharmacy, was reported on at the recent annual meeting of the American Pharmaceutical Association and will be available to other states. A basic science examination, prepared at the request of the National Board of Examiners for Osteopathic Physicians and Surgeons, has been used by the Chicago College of Osteopathy and the Osteopathic Licensing Board in California.

Development of an examination for the evaluation of foreign-trained physical therapists is in preparation for the American Physical Therapy Association. Discussions are under way with voluntary agencies as to possible examinations for evaluating training programs.

California and Montana have been added to the four states that are now using the medical licensing examination. The first four are Colorado, Missouri, Oregon, and Wyoming.

There are now 26 states and 11 cities, counties, and separate crippled children's commissions participating in the Annual Service Plan for the purchase of objective type examinations. There has been a loss of five states because of cuts in federal funds, and there is indication that more states may withdraw unless additional federal support is available.

The income of the Professional Examination Service for 1953 exceeded expenses by some $3,000. The calendar year 1954 will be the first year during which no grant money was received. It is anticipated that the income for this year will, however, be adequate to cover the year's expenses.

Accreditation of Schools of Public Health—The committee was fortunate in obtaining the services of Wilson G. Smillie, M.D., as consultant on accreditation to continue the service so excellently rendered by Professor C.-E. A. Winslow since the inception of the program in 1945. In his report to the committee, Dr. Smillie was enthusiastic in his praise of the amount of research carried on in the schools, and the community services to local, state, national, and international organizations, official and nonofficial. He described these as the greatest and most effective features of public health schools.

With the addition of the School of Hygiene at the University of Montreal, 12 institutions are now accredited by the Association for the degrees of doctor of public health, master of public health, or master's degree in public health education. The Montreal School of Hygiene is unique in that it is the only school of public health where French-speaking students from all over the world can receive training in the pattern now well established in North America.

In closing, the chairman believes that the Committee on Professional Education has made progress in the direction of improving the quality of public health practitioners. Appreciation is extended to the subcommittee chairmen and members for their enthusiastic support.

LEROY E. BURNEY, M.D.
U. S. Public Health Service,
Washington, D. C.,
Chairman.

Committee on Research and Standards

The Committee on Research and Standards involves the activities of some 200 experts from all fields of public health. There are 15 Fellows of the Association who serve on the committee itself with the remainder serving on subcommittees, as consultants, referees, and study groups. It has been a privilege for me to serve as chairman of this committee for the past year. I have been most impressed by the time and effort expended by all these members on behalf of the Association. It has been encouraging to see the cooperation and team spirit shown, not only among individuals but between different committees of the Association and our kindred societies. It is a pleasure to outline some of the contributions of the Association to public health made possible by the Committee on Research and Standards.

Since it is not possible in a summary report to report fully on everything the Committee on Research and Standards has done, I shall follow the pattern of last year and present only a condensed report. The projects of most of the subcommittees are developed on a long-range plan. Thus, it is natural that during some years some of the committees may not have completed tasks to which we can point. I shall attempt to review for you only those activities that have produced fairly specific results during the past year.

A large part of the meeting of the committee last year was spent in reviewing the past program of Research and Standards and in plotting our course for the future. Our four new members brought refreshingly new concepts to the committee during the meeting held this spring. We agreed that the past program of preparing technical guides in the laboratory and other fields must be continued and those now in existence must be reviewed constantly and kept consonant with current knowledge and practice. But the committee recognized danger in becoming preoccupied with these endeavors. It agreed that stress must also be placed on the development of new knowledge, on the task of blazing the trail of new practices so that the sections and other committees will be encouraged to undertake detailed study and research in those areas of their particular interest. As a result, two new members of the committee, Sidney S. Chipman, M.D., and Bernard G. Greenberg, Ph.D., have been given the task of exploring possible needs for research and what Research and Standards might do in the child health field. We also have drafted Jerome Trichter, not a member of the committee, to make a detailed study of the need for authoritative statements on the use of insecticides that were initially developed for agricultural and commercial use, but that are more and more coming into everyday use in the home. A third new member, C. Howe Eller, M.D., was asked to summarize the present situation in atmospheric pollution control activities in which at least three Association committees are now active in order to determine what Research and Standards can and should do. Future action will depend upon the recommendations made to the committee.

A plan for more direct stimulation of research activities by the Sections is under consideration. This may result in routinely inviting representatives of various Sections to sit with Research and Standards during its fall meetings. Chairmen of existing sectional research

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committees have been invited to attend the Research and Standards meeting Monday evening.

The laboratory study of diphtheria and multiple antigens is being added to the committee's interests in pertussis antigens. As you know several of the biologics manufacturing companies have been generous in providing financial support for several years to the studies of pertussis vaccines conducted under the direction of Pearl Kendrick, Sc.D., and Grace Eldering. I regret to say that this financial aid will end this year. I am glad to report that studies of a different type will be continued under a new committee in the multiple antigens-diphtheria-pertussis field.

The accomplishments of the Association, via Research and Standards and its Subcommittee on the Hygiene of Housing, are so well established that you may feel we should be content to rest on our oars. The subcommittee does not think so. The well established Basic Principles of Healthful Housing, planned for urban or city conditions, is being re-evaluated so that similar guides for rural housing will be available. New projects, the one on housing standards in tropical areas and the other dealing with the development of a way to measure the mental hygiene factors of good housing, are under way. The continued generous support of the Milbank Fund furnishes the basic financial background for the subcommittee. New funds will be needed for the evolving activities. The Proposed Housing Ordinance, published in 1952, has served as a valuable aid in the development of new housing codes in at least 21 cities in 14 states and the District of Columbia. I am happy to report that Dr. Winslow has been able to continue as the active chairman of the subcommittee.

It is always pleasant to review the concrete evidences of committee work found in published reports. The Eighth Edition of The Control of Communicable Diseases in Man has been prepared under the leadership of John E. Gordon, M.D. You will be asked later to place your stamp of approval on the report as an official Association document. In past reports we have told you of translations of previous editions into Chinese, French, German, Portugese, Spanish, and Thai. I now can tell you of additional translations into Finnish, Japanese, and Serbo-Croatian. Truly, this report has become a world public health classic. The eighth edition will be published in January of next year.

Several published volumes are prepared by committees working under the Coordinating Committee on Laboratory Methods. Ferdinand R. Hassler, M.D., chairman of that Research and Standards subcommittee, has reported publication of the Tenth Edition of Standard Methods for the Examination of Dairy Products. This was put on sale at about the time of our Annual Meeting last year. Archie H. Robertson, Ph.D., was chairman of the Subcommittee on Standard Methods for the Examination of Dairy Products, the committee that prepared the report. A kindred report, the Tenth Edition of Standard Methods for the Examination of Water, Sewage and Industrial Wastes, is expected early next year. This new edition is already being translated into Spanish and Italian. F. Wellington Gilcreas is chairman of the subcommittee. (I remind you that this particular report has the joint sponsorship of the American Water Works Association and the Federation of Sewage and Industrial Wastes Association.) Both Standard Methods have been approved as official American Public Health Association reports by you.

Other volumes to be published, not as Association reports, but rather as Coordinating Committee on Laboratory Methods reports approved by the Committee on Research and Standards, include:

The Fourth Edition of Diagnostic Procedures and Reagents. Albert H. Harris, M.D., chairman, reports the full organization of his committee and revision of some of the chapters. In this new edition each chapter will represent the work of several experts.

A new publication, Handbook for the Care of Laboratory Animals, was prepared by Lawrence Slanetz, Ph.D., as part of the work of the Subcommittee on Diagnostic Procedures and Reagents. This is a modest manual, now being printed, but I predict an enthusiastic reception for it.

The Second Edition of Diagnostic Procedures for Virus and Rickettsial Diseases, is in completed manuscript form. Thomas Francis, Jr., M.D., subcommittee chairman, reports that the committee is now giving it a final review prior to submission to a printer. Publication should be in 1955.

The Microbiological Examination of Foods, will represent early work of both the Food and Nutrition and the Laboratory Sections brought up to date and augmented by additional methods prepared by the subcommittee under Harry E. Goresline, Ph.D., as chairman. The manuscript is complete and is in the hands of reviewers now. A 1955 publication date is hoped for.

Methods for Determining Lead in Biological Materials, published originally in 1944 as a report of the Industrial Hygiene Section, has been completely revised by a committee of the Industrial Hygiene Section under the direction of Morris B. Jacobs, Ph.D. Much new material has been added. Since all published laboratory methods volumes fall within the purview of the Coordinating Committee on Laboratory Methods, that committee will take action on the report during this meeting of the Association. Publication in 1955 should be possible.

The Coordinating Committee has struggled for several years with the problem of providing some means for assuring uniform quality in culture media used in the milk plating procedures. The method followed so far has been to evaluate the product of individual manufacturers. This is expensive and time-consuming. A subcommittee under the chairmanship of Leon Buchbinder, Ph.D., has been attempting to find a practicable solution. Our hopes were high for a good solution, one that would call for the certification of each batch of suitable media, regardless of manufacturer, based upon the results of evaluation of each batch of media by an unbiased, disinterested laboratory. You will recognize this as a move into a new type of activity for the Association. Unfortunately, just when we were ready to accept a definite understanding with the participating laboratory we were advised that it would be unable to participate. The committee continues its explorations.

It is my sad duty to report to you the death of Donald T. Fraser, M.B. As far as I know he is the first member of the Committee on Research and Standards to die in harness. He was completing his fifth year as a member of the committee. We shall miss him.

Other committees working directly under Research and Standards and under the Coordinating Committee on Laboratory Methods are pursuing their particular tasks and assignments. It would be worth your while to skim through the entire list of committees of Research and Standards and the individuals serving on them. I am sure you will agree with me in saying that the Association owes every member of those committees a sincere vote of thanks for their continuing contributions. I express my personal satisfaction at having had the opportunity to work intimately with them.

MALCOLM H. MERRILL, M.D.
State Department of
Public Health, Berkeley,
Calif., Chairman.

Clearing House on Public Health Salary Information and Personnel Needs

International Health Opportunities

Nurses, sanitary engineers, and other public health personnel with the wanderlust and the desire for an exciting and unusually gratifying and interesting work experience now have a made-to-order opportunity to satisfy this urge. The Public Health Service, at the request of the Foreign Operations Administration, gives technical support to this international health program through programing, recruitment, and assignment of trained personnel. Over 250 American professional persons in various public health fields are currently working with and training health workers in 37 different foreign countries.

The Public Health Service has recently released four new pamphlets describing these challenging opportunities for Americans to work abroad in the field of public health. The pamphlets for nurses (No. 424-A) and for sanitary engineers (No. 424-C) not only give information regarding the duties, salary, travel, housing, and allowances but list the names of the individual nurses and sanitation personnel currently on duty in these countries. These pamphlets and further details may be obtained from the Division of International Health, Public Health Service, Washington 25, D. C.

Nurse Recruitment

The National League for Nursing, through its Committee on Careers, has published three new recruitment aids. One is a poster listing nursing opportunities in several categories such as hospital nursing, public health nursing, nursing education, and Armed Forces, with brief description of types and classes of job and range of salaries.

A second is the annual listing of nearly 1,200 schools of professional nursing by states and giving information about accreditation, the states' minimum requirements for nurse registration, and numerous other items.

The third is a Handbook for Counselors on Careers in Nursing—a very well put together brochure with good photographic illustrations.

Single copies of the first two are available free, the third for 25¢. Committee on Careers, National League for Nursing, 2 Park Ave., New York 16.

Medical Technologist Career Film

The National Committee for Careers in Medical Technology has available a recruitment film "Career: Medical Technologist." It is designed to interest young people in the medical technology profession. The film portrays the role of the technologist in medicine and research and indicates its requirements, its compensations, and the kind of jobs open to the trained worker.

The 24-minute color film, produced by Churchill-Wexler Productions, Los Angeles, Calif., was made possible by a grant from the American Cancer Society to the committee, which represents three organizations in the general field—American Society of Clinical Pathologists, American Society of Medical Technologists, and College of American Pathologists. Prints are available on loan or for purchase, the latter at $135. 1785 Massachusetts Ave., N.W., Washington 6, D. C.

On the subject of the medical tech-

nologist also, the February, 1953, issue of Today's Health (AMA) has a brief article outlining the opportunities this profession provides for the young person "who would like a direct role in saving lives."

Fulbright Travel Grants Available

United States citizens who can qualify as "advanced scholars" and who occupy senior teaching positions in medical schools and departments of preventive medicine may be interested in travel grants which may be available for sabbatical leaves in other countries, especially Great Britain. Persons interested should communicate with Reginald M. Atwater, M.D., Executive Secretary, APHA, 1790 Broadway, New York 19, N. Y.

Michigan's New Public Health Degrees

The University of Michigan School of Public Health, beginning with the current academic year, is offering courses leading to the degree of Master of Public Health (Industrial Health). Requirements for the degree are similar to those for other M.P.H. candidates with six additional course hours in the specialty. In some instances special sections of the courses required for all M.P.H. candidates have been set up for the industrial health students. During the current year five students are enrolled for the degree.

A related degree has also been approved by the University Board of Regents. A program leading to a master's degree in hospital administration will be offered for the first time in the academic year 1955–1956. The program will be centered in the School of Business Administration and will have an advisory committee made up of the deans, or their representatives, of the Schools of Public Health, Medicine, and Business Administration. S. J. Axelrod, M.D., associate professor of public health economics, is the representative of the School of Public Health. Other Schools of Public Health training hospital administrators are those of the Universities of California, Minnesota, and Pittsburgh, and of Columbia and Yale Universities.

Training in Aviation Medicine

The Harvard School of Public Health is offering for the first time graduate training in Aviation Medicine during the current academic year. The program leads to a degree of Master of Public Health. The program is directed by Ross A. McFarland, M.D., associate professor of industrial hygiene. It meets the requirements of the American Board of Preventive Medicine for one year of graduate training in the basic sciences related to aviation medicine.

The board, which recently certified Aviation Medicine as a medical specialty, requires two years each of graduate study in preventive medicine and aviation medicine, following an internship, of residency in aviation medical practice, and of unsupervised practice in aviation medicine, in addition to regular and frequent participation in aerial flight.

The year at Harvard consists of a special seminar in aviation medicine in each of the four quarters. The seminars include discussions of practical problems, from the human aspect, of high altitude operations, ventilation, temperature, humidity, control of insects and air-borne diseases, noxious gases, noise, vibration, acceleration and motion, cockpit and control cabins, passenger accommodations, and psychological factors involved in the selection of airmen.

In the first class at the School of Public Health, 15 Air Force aviation medical officers are enrolled. Those who plan to enter medical services of aircraft

manufacturing companies and civil airlines are admitted as well as representatives of the military service.

Ophthalmology Fellowships

In order to stimulate the development of ophthalmic investigators, the National Council to Combat Blindness is now accepting applications for its 1955–1956 research grants-in-aid and research fellowships. Its Scientific Advisory Committee meets in May to consider applications. Fellowship applicants must make their own arrangements for suitable research facilities with accredited institutions. The closing date for completing applications is April 15, 1955. Forms and further information from Secretary, National Council to Combat Blindness, 30 Central Park South, New York 19.

The Scientific Advisory Committee of the council consists of 16 members—14 physicians and two doctors of philosophy. In 1954–1955 grants-in-aid or fellowship awards totaling $47,660 were made to 20 persons for 20 projects in 15 different institutions. Four of the projects totaling 22 per cent of the awards were made abroad—England, Israel, Japan, and Turkey.

Course in Epidemiology for Nurses

The Communicable Disease Center of the Public Health Service in Atlanta, Ga., is offering a refresher course in communicable disease control to public health nurses and instructors in communicable disease nursing, May 16—June 3, 1955. Designed to increase the technical knowledge and skills of nurses in the prevention and control of communicable diseases, the course will emphasize epidemiologic principles and technics. Field experience under supervision will be available to a limited number of students upon completion of the course.

Further information and application from either your State Health Department Director of Public Health Nursing or Chief Nursing Consultant, Communicable Disease Center, 50 Seventh St., N. E., Atlanta, Ga.

Industrial Medicine Fellowships

The Institute of Industrial Health of the University of Cincinnati has made available a limited number of fellowships for qualified candidates who wish to pursue graduate work in industrial medicine. Registered physicians, graduates of a Class A medical school with at least two years of training in an accredited hospital are eligible. Private practice or service in the Armed Forces may be substituted for one year of training.

The course of instruction consists of two years of intensive training in industrial medicine, followed by one year of practical experience under adequate supervision in industry. Candidates who complete the course of study satisfactorily are awarded the degree of Doctor of Science in Industrial Medicine.

The fellowship stipends vary from $3,000 to $3,600 in the first year depending on marital status, and $3,400 to $4,000 in the second year. In the third year the candidate will be compensated by the industry in which he is completing his training.

Additional information from Institute of Industrial Health, College of Medicine, Cincinnati 19, Ohio.

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Brief Biography of Dr. Sabin

The Metropolitan Life Insurance Company has done a real service to public health in publishing "Florence Rena Sabin: Great Teacher, Great Scientist, Great Citizen." In four closely packed pages this occasional Health Bulletin for Teachers (Oct., 1954) of the School Health Bureau summarizes the main facts of Dr. Sabin's life. Dr. Sabin was one of the first women to distinguish herself in experimental medicine. After retirement at 73, she became distinguished in public health by revolutionizing public health in her native state of Colorado.

The biography is not only packed with facts but succeeds in expressing the warmth and color of Dr. Sabin's personality. Beyond its interest to her many friends and admirers, it should have value as an aid in recruitment of scientists related to public health and medicine. School Health Bureau, Health and Welfare Division, Metropolitan Life Insurance Company, One Madison Ave., New York, N. Y.

Its Infant Mortality Stirs St. Louis

The 1952 annual report of the St. Louis commissioner of health noted that the city's infant death rate for the year was the highest of any major city in the country. The local press picked up this item. Then things began to happen.

The St. Louis Gynecological and Pediatric Societies and the St. Louis Academy of General Practice organized a Committee on Infant Mortality. It invited the health commissioner, J. Earl Smith, M.D., to be a member. Credit Lines is indebted to him for the story. He says, "This Committee of approximately 45 members, vitally concerned with our high infant mortality rate, organized and perfected the mechanics of its procedures without any urgings or suggestions from the Health Department. This required real courage . . . because the Committee members were not only investigating some of their professional colleagues but, to a large extent investigating themselves. From its very inception the Committee vigorously pursued a policy of ferreting out all the available facts in each case—let the chips fall where they may. . . . Their mobilized enthusiasm for the very difficult and time-consuming job they set out to accomplish engendered in me an everlasting respect and admiration for their professional competency, their intelligent idealism, their capacity for hard work and their spirit of good humor—tempered always with a seriousness of purpose."

The committee studied every infant death in more than 1,500 hospital records and made definitive findings and recommendations. Physicians of the city were on the alert about infant mortality. Already 1953 figures showed results. The infant death rate was 6 per cent below that of 1952. St. Louis was now ninth instead of 14th among 14 major cities.

In December, 1954, the St. Louis Post-Dispatch carried two full pages of pictures and text indicating some of the activities, good and bad, in the present care of the newborn in St. Louis. The whole is titled "Lack of Public

Health Funds Is Chief Factor in St. Louis High Infant Death Rate." With both map and text it is pointed out that "St. Louis's infant mortality problem is concentrated to a large extent in the central area of blight and slums which include 10 of the city's 26 health districts."

And just to appeal to local pride the Post-Dispatch included some pictures labeled, "Illinois Portion of Metropolitan Area, with State Aid, Does a Good Job in Premature Baby Field."

Dr. Smith's address before the St. Louis Medical Society in November, 1954, is a full report of this cooperative activity and some of its results. He might share it with interested readers.

Homicide in the Home—by Accident

"Home Homicide" is the title of a 16 mm discussion film produced by Columbia University's Mass Communication Center. Intended for discussion groups, classes, clubs, etc., the film is in two parts. The first, about five minutes, sets the stage for a discussion of "How can we end the homicide of Home Sweet Home?" A panel, forum, town meeting, or other type of discussion period follows, after which the last two minutes of the film restates the problem and provides a conclusion. Center for Mass Communication, 1125 Amsterdam Avenue, New York 25. Rental $3; purchase $40.

A Health Film Catalog

The Cleveland Health Department and the Health Education Committee of the Cleveland Health Council have cooperated in producing and distributing "Health Film Catalog." Listed are "all the health films in the Cleveland area that are available for loan either to the general public or to specific groups." The basic descriptive listing is alphabetical but there is also a title listing both by 11 subject groups and by 23 agencies owning the films. The opportunity is also used to suggest available consultation service in program planning from the Bureau of Health Education of the Department of Health.

The catalog is in a convenient spiral binder and is planned for periodic supplementary listings. It is available from the Health Education Committee, Cleveland Health Council, 1001 Huron Road, but there is no information as to out-of-Cleveland distribution.

A Manual for Community Survey

"Toward Solving the Puzzle—A Manual for Appraisal of Community Resources and Social Services" is a major contribution to the development of schedules for community self-study. It covers health, welfare and leisure-time services. It is designed to assist community groups concerned with the question "What is the fiscal ability of our community to support an improved program of social services?" The manual does not attempt to answer this question, but suggests rather a method for investigating the problems which it raises. It provides suggested tables and methods of collecting and utilizing data so that they can be adapted to local Massachusetts communities. The classification and inclusion of the interrelated fields in a usable framework is a contribution in itself. The section on health is based largely on "Guide to a Community Health Study" of the American Public Health Association. Massachusetts Community Organization Service, 3 Joy Street, Boston; $1.

Industrial Ventilation Principles

Two pamphlets of interest to industrial hygienists are available free of charge. The first is "Theoretically Required Exhaust Rates for Dust Control in Bulk Material Handling Systems,"

and the second, "Exhaust for Hot Processes." The material in the pamphlets is based on two chapters of the forthcoming book, "Plant and Process Ventilation," by W. C. L. Hameon, Industrial Hygiene Foundation, Mellon Institute, Pittsburgh, Pa., from whom copies may be obtained.

Reporting the Coming Program

The Health Department of Jefferson County, Mo., has prepared a pamphlet, presumably for citizen distribution, in which is outlined the program or services that the department is carrying on. Each of the services is outlined as to content, purpose, and method of carrying out. For example, one of the child hygiene services is tuberculin testing, which "will be done on all pupils (with parents' consent) in the following grades—kindergarten, first, fourth, and ninth. Positive reactors will be x-rayed as will their adult contacts."

This means of keeping citizens informed and building up understanding and support of health services might well be followed elsewhere.

Carl E. Rice, M.D., is health officer of Jefferson County, which has a population of about 40,000.

Rheumatic Fever Care Facilities

The Helen Hay Whitney Foundation for Rheumatic Fever Research, organized in 1947, has recently published a "Directory of Facilities for Care of Patients with Rheumatic Fever and Rheumatic Heart Disease." The 40-page pamphlet represents revision of a directory of "Institutional Care Facilities in the United States for Rheumatic Fever and Rheumatic Heart Disease," published in 1949 cooperatively with the American Heart Association.

Also established during this five-year period of cooperation is a Clearinghouse of Information concerning nation-wide rheumatic fever and rheumatic heart disease care facilities and activities, as well as of research activities in the field. In addition, an extensive reprint file is being maintained from which bibliographies on rheumatic fever are prepared. These bibliographies cover such aspects of rheumatic fever as camping, convalescent care, prevention, vocational guidance, etc.

This entire project, organized under the leadership of the late T. Duckett Jones, M.D., medical director of the Helen Hay Whitney Foundation, is now being carried on by the foundation alone. Its aim is to make available such information as local heart associations are not able to furnish.

The directory and bibliographies are available on request. Queries will be answered by the Clearinghouse as far as staff permits. Reprints on the usual library loan basis are also available to professional workers. Dora E. Young is the executive secretary, 525 E. 68th St., New York 21, N. Y.

Cereal and Milk for Reducers

The Cereal Institute and the American Dairy Association are cooperating in their annual Cereal and Milk Festival during April. Its purpose is to promote the food team of cereal and milk by emphasizing both their contribution of essential nutrients and their low calorie value as a timely tie-in both with the festival and with weight control programs. The Cereal Institute offers a 24-page booklet titled, "Breakfast in the Modern Reducing Diet." Cereal Institute, Inc., 135 S. La Salle Street, Chicago 3, Ill. Free.

Annual Reports

"The Picture of Public Health in New York City," the 1953 report of the Department of Health, appeared at the beginning of 1955. It is an attractive

black and orange job illustrated with photographs of actual activities. Brevity and effective choice of both outline and words bring the report to the neighborhood level. There is fortunately no attempt to impress the citizen with the complexity and immensity of the department's activities, but rather to concentrate on the services and protection given. Prepared by the Bureau of Health Education of which Morey Fields, Ed.D., is the director. Leona Baumgartner, M.D., is the health commissioner. 125 Worth St., New York 13, N. Y.

Annual Report for the Year ending June 30, 1954, of DuPage County, Ill., is simple and easily readable. But perhaps its most significant characteristic is the way it was produced. It is a product of all the staff members who thrashed out subjects and text together in staff meetings. It is reproduced by mimeograph contact dry ink machine. Stencils were made by borrowing an electric typewriter from a local IBM salesman, mimeographing by having a contact dry ink machine demonstrated by the salesman who supplies the department. The health educator, under whose direction the report was produced, is Clarence E. Pearson; E. L. Sederlin, M.D., is the health officer.

Speaking of annual reports, Chas. Pfizer & Co., Inc. (A.J.P.H. Feb., 1955, p. III) has received an Industry "Oscar" for the excellence of its 1953 Annual Report, in a competition sponsored by the Financial World magazine which yearly judges more than 5,000 annual reports. Pfizer's was recognized in the drug field classification.

Worth Acquiring

"Standards for General Convalescent Homes Caring for Cardiac Children" has been published by the American Heart Association as a guide to communities planning or maintaining such homes. It will also aid physicians in determining whether a convalescent institution is equipped to meet a particular patient's needs. Among the standards suggested are affiliation with a hospital.

Recognizing that the convalescent home is but an interim in the safe convalescence from rheumatic fever to full health, the manual has something to say also as to the length of institutional care, the relation to the community as a whole, and the child's home environment as the patient is returned to a normal way of life as soon as possible.

Available from local heart associations and the American Heart Association, 44 East 23rd St., New York 10.

"The Adolescent in Your Family" is the fifth and final volume in a series of bulletins on child development published by the Children's Bureau. Best known in this series is Infant Care, more than 33 million copies of which have been distributed in the 40 years since it was first produced. The others are Prenatal Care, Your Child from One to Six, and Your Child from Six to Twelve.

Designed as a source book for parents, The Adolescent in Your Family brings together the counsel of outstanding experts on the period of emergence from childhood to adulthood. Before publication the volume was viewed by some 75 persons from a variety of professional fields related to child psychology, psychiatry, family education, and others. It was prepared with the consultant advice of the Bureau's Pediatric Advisory Committee, made up of representatives of four medical societies. Children's Bureau Publication 347, 1954. Gov. Ptg. Office, Washington 25, D. C., 25¢.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

The Health of Regionville. What the People Thought and Did About It—By Earl Lomon Koos. New York: Columbia University Press (2960 Broadway), 1954. 177 pp. Price, $3.25.

That man is a social being, and that his behavior is influenced by his position in the group of which he is a member, has not been news since Aristotle. For several hundred years at least it has been known that man's health is intimately related in one way or another to his socioeconomic environment, and a large part of the public health program is based on this knowledge. Information is available about the incidence and cost of illness, about mortality by social and occupational groupings, but there is not much known about the social determination of human behavior in regard to health.

The study reviewed here endeavors to supply some information on the latter subject. It is an empirical investigation of some five hundred families in "Regionville," a small town and its surrounding area in upstate New York. These families were visited and interviewed at intervals in order to learn their health habits and to uncover their attitudes toward health and disease, the manner in which these families used the institutions available in the community to deal with health matters, and the relations existing between the families and their sources of medical care. Social class is a fundamental element in the system of social relationships that characterize the American community and is important in dictating the behavior of its members. Hence, the hypothesis of this study, namely, that if social class is so significant, "it is not unreasonable to expect that differences in behavior and thought concerning health and illness will be related to the position of family units in the community."

Based upon income, occupation, and the way in which the people grouped themselves in their everyday associations, the residents were divided into three social classes and assigned positions in this hierarchy. The families involved in the study were then investigated to see whether there was any relationship between class position and health behavior. Significant differences were found in attitudes toward illness, use of the physician, the dentist, the use of the druggist and other nonmedical personnel, and toward the hospital and other institutions concerned with health problems.

It is manifestly impossible to discuss the findings here, but a few will be mentioned. Thus, when members of the families were asked to indicate whether each of a list of symptoms was significant and should be called to the attention of a physician, the following results were obtained. Class I respondents showed a uniformly high recognition of the importance of the symptoms, while Class II respondents showed somewhat less sensitivity. In sharp contrast, however, Class III respondents showed a marked indifference to most symptoms. Only three symptoms (blood in stool, blood in urine, and excessive vaginal bleeding) were indicated as highly important in all three classes and even here Class III respondents lagged far behind. Again, this difference was

found with respect to treatment received at the hands of the physician. While there was a moderate difference in the opinions of the Class I and II respondents, there was a sharp difference between these and the Class III responses. The latter appeared to share a feeling that the Regionville physicians were not particularly interested in them as patients. It should be remembered that the doctors belong to Class I and thus represented a different subculture. In general, Class I families had positive attitudes toward health, made use of treatment, and evaluated this activity positively; while Class III families held indifferent or negative attitudes toward health matters, utilized treatment inconsistently, and frequently evaluated it in a confused manner. Class II families had some of the knowledge and aspirations of Class I, but lacked the means to meet the needs which they recognized.

There are many implications for health workers in this study. It should be read and studied by physicians, nurses, health educators, hospital administrators, and anyone who has any interest at all in the problem of improving health care for Americans. Koos has made a significant contribution toward this goal, but further studies in this area are needed. A similar study of physicians' attitudes and behavior is equally necessary. How does the doctor see patients belonging to the different social classes? How is the establishment of a good doctor-patient relationship affected by the physician's position in the social class hierarchy of the community? Also, we need studies of social class and health behavior not only for small towns and esoteric ethnic groups, but even more so for the bulk of Americans, those who reside in the larger centers of the United States. Finally, we need operational research in putting such knowledge to use in the health program on various levels. Research along these lines will help provide a realistic basis for the improved provision of health care to the American people.

GEORGE ROSEN

America's Resources of Specialized Talent. The Report of the Commission on Human Resources and Advanced Training—Prepared by Dael Wolfle. New York: Harper (49 East 33rd St.), 1954. 332 pp. Price, $4.00.

This book is one of a small but growing number of reports which give evidence of our increasing interest in America's resources of highly trained manpower. It represents the fruits of approximately five years of study of the problem, and deals with the supply and demand of personnel in several subcategories of the natural and social sciences, the humanities and arts, the health fields, engineering, and other areas of specialization. The present status of supply and demand is pictured, and the trend during the last half century is examined.

College graduates are shown to be our almost exclusive source of specialized manpower. With a given number of college graduates, increases in the numbers in any one specialty can only be attained at the expense of the others. If past trends continue, however, the number of college graduates can be expected to increase at a faster rate than the population. This number could be augmented further by (1) supplying financial aid to college students, (2) increasing the wish for college education, and (3) improving our educational practices.

In the sense that education is the lifeblood of democracy, an increasing number of college graduates can only redound to our competence and virility as a nation. In any consideration of college, graduate, and professional education as vocational, however, accurate forecasts of the future needs of the

nation for manpower in the individual specialties become crucial. As the author points out, "there is need for improvement in methods of forecasting demand. The problem of attempting to predict future needs for specialized manpower is so relatively new that there is only a meager background of experience with which to appraise the forecasts which are made. Nor is there as yet much of a systematic framework of thinking to direct the collection of the most useful data and suggest the most fruitful types of analysis." EDWARD W. COHART

Roberts' Nutrition Work with Children—By Ethel Austin Martin (3rd ed.). Chicago, Ill.: University of Chicago Press (5750 Ellis Avenue), 1954. 527 pp. Price, $7.50.

The revision of Dr. Lydia Roberts' book by Mrs. Martin is an example of a book whose clearly stated objectives are skillfully dealt with in its 527 pages. In the preface the author states: "The purpose of this third edition . . . is to present in one volume both the problems of child nutrition and practical methods of dealing with them."

Very logically, as stated by the author, the content of the book falls into two sections. The first section "is devoted largely to basic understanding of the problems" and the second "is concerned with the interpretation of these understandings in terms of educational procedures." In a readable style an extensive literature is covered. Included are the generally accepted criteria for appraising nutritional status and growth, consideration of the factors responsible for malnutrition, and the handicaps resulting from it.

Then follows a discussion of nutritional requirements from conception through adolescence and workable ways of meeting them. Of great interest to the student of nutrition, the practicing nutritionist, the nurse, the administrator, other public health workers, and the interested layman are the chapters enumerating and describing the work of the agencies featuring programs which contribute to the nutritional well-being of children. The school lunch is convincingly presented as a teaching medium and a workable means of promoting sound nutrition practices and good food habits.

Helpful suggestions, excellent charts and illustrations, and a well selected bibliography adapted to the needs of all levels of education should be useful to teachers of nutrition and community workers and to the many others whose work and interests include the improvement of child health and welfare.

This fine revision of a standard text and reference book of nutrition assures its continued usefulness.

ERNESTINE B. MCCOLLUM

A Manual of Tropical Medicine—By Thomas T. Mackie; George W. Hunter, III; and C. Brooke Worth (2nd ed.). Philadelphia, Pa.: Saunders (West Washington Square), 1954. 907 pp. Price, $12.00.

The publication of a second edition of this volume should be received with enthusiasm. The first edition, published during World War II, was directed at a concise presentation of practical aspects of the epidemiology, diagnosis, treatment, control, and prophylaxis of the more important tropical diseases and made readily available for reference the important facts on these aspects of disease in tropical areas. It became a reliable volume for quick reference to essential facts. However, the rapid and extensive developments in the field of tropical diseases since World War II have resulted in the development of important information impairing the use of the text. The new edition incorporates this large fund of accumulated knowledge and condenses it in a fashion, making it readily available. At the same time it maintains the con-

ciseness and clarity of approach which characterized the first edition. Inclusions and substitutions of material, for example, in viral encephalitides, leptospiral disease, effects of heat, epidemic hemorrhagic fever, to mention a few, have kept pace with developments in these various fields. Authorship of sections has been chosen so that presentation of material represents contemporary thought by recognized authorities. Still the volume maintains all the desirable attributes of the first edition and makes it an important reference work for those who want a short, concise, but adequate exposition of the clinical and public health aspects of diseases important in warm climates.

W. A. SODEMAN

Geriatric Nursing—By Kathleen Newton (2nd ed.). St. Louis, Mo.: Mosby (3207 Washington Boulevard), 1954. 424 pp. Price, $4.75.

This book, planned by the author primarily for those who nurse the aged, brings up to date the approach and material developed in the earlier edition. Approximately one-third of the volume is devoted to background discussion and to nonspecific consideration of hygiene and nutrition. This section will be particularly helpful to those interested in understanding the growing impact on our society of the increase in our aging population. Society's attitude toward them and their social, economic, and health needs are presented constructively. A realization that older, like younger, people prefer to live independently and the conviction that sound teaching of the patient and his family can contribute to the continuance of such independence illustrate the author's positive approach to her subject. There is keen awareness that good planning involves close interprofessional teamwork to achieve its best results.

The greater portion of the text deals with clinical nursing in the wide range of conditions to which older patients are subject. The material is clearly presented throughout. Sympathetic understanding of the older patient as an individual is evident in the careful and specific suggestions offered for the adaptation of nursing skills and procedures to the needs of this group. These chapters provide a valuable source of reference for nurses in hospitals, nursing homes, and community agencies, all of whom are increasingly called upon to care for older patients. They are detailed and concrete.

The text is well illustrated and the arrangement of pertinent references at the close of each chapter facilitates further exploration for the student. The format of the book is enhanced by unusually clear printing.

RUTH W. HUBBARD

Smoking and Cancer: A Doctor's Report—By Alton Ochsner. New York: Julian Messner (8 West 40th St.), 1954. 86 pp. Price, $2.00.

This 86-page book is written for the public by an outstanding surgeon. Dr. Ochsner writes as dynamically as he speaks. The material is attractively presented and easy to read, but the bombastic style seems more suitable to journalistic reports than to a scientific study.

The subject of the relationship of cigarette smoking to lung cancer and other diseases is one that needs all the scientific skill that can be applied to it. In the opinion of this reviewer, the causal relationship is not proved, although the correlation between cigarette smoking and lung cancer is established beyond reasonable doubt. Statistical and epidemiologic methods seem most promising for further investigation of this general problem. The author, an outstanding clinician, gives no hint of even an elementary knowledge of these methods. He is quite uncritical in accepting any evidence that seems to

confirm his doctrine that smoking is responsible for a large portion of mankind's ills.

This book will be eagerly read by many persons looking for confirmation of their beliefs. It will disappoint others who are looking for a scientific, objective, and critical discussion of the problems involved. This reviewer plans to place this book in the nonscience section of his library.

GLEN R. LEYMASTER

Committee Common Sense—By Audrey R. and Harleigh B. Trecker. New York: Whiteside, Inc., and William Morrow & Co., Inc. (425 Fourth Ave.), 1954. 158 pp. Price, $2.50.

The title of this book is aptly taken. Based on the satisfactions derived "from working with countless committees in all kinds of organizations" but mindful of the accompanying frustrations, irritations, and fumblings, the authors are sharing in this handbook some of the observations and learnings from their own experience. This is done with the hope that it will be helpful to everybody who is working on committees or will do so at some future time, and not to the committee chairman alone.

The authors point out that the committee process is the only known alternative to one-man control of organizations and as such is too important in modern society to be treated casually. In business and civic enterprise, the committee is the working group through which vital decisions are made and how the individual works with others on such assignments determines in large measure the kind of community there will be.

With this in mind, the authors have put down in clear, orderly fashion the why—who—when—what—and how—of successful committee operations. Helpful guides in the form of charts, check lists and outlines are included, as well as a suggested "Code of Conduct" for committee members. The concluding chapter is a presentation of 15 "Principles of Effective Committee Work" which give added meaning to participation in the committee process.

Everyone threatened with or suffering from "committee-itis" should find this book a wholesome, therapeutic measure. A suggested reading list is appended.

JOSEPHINE J. ALBRECHT

Air Pollution—A Bibliography—By S. J. Davenport and G. G. Margis. (Bull. 537 U. S. Bureau of Mines), Washington, D. C.: U. S. Gov. Ptg. Office, 1954. 488 pp. Price $1.75.

Air pollution and its control is a grave problem in many communities. This bibliography, an outgrowth of the United States Technical Conference on Air Pollution, is actually a collection of abstracts covering the literature concerning outdoor atmospheric pollution. This collection of abstracts has been arranged according to subjects with the abstracts under each subject in chronological order, arranged alphabetically. The major subject subdivisions are: general aspects, nature and origin, composition, physiological effects, methods of determination, control and abatement, legal aspects, and cost of air pollution. A major share of the book is devoted to the control of air pollution with some 170 pages devoted to this phase of the subject.

Many sources were used by the authors in preparing this bibliography, including prior bibliographies, abstracts from general abstract journals such as Chemical Abstracts, and specialized abstracts of specific journals dealing principally with air pollution control or industrial hygiene.

It is to be regretted that the source material of the biblography was so strictly construed that major sources of literature dealing with methods of determination of air pollutants in the closely related field of industrial hygiene were omitted. One other point that may

be mentioned is that the topic of meterology should have been made a separate section rather than placed as a subdivision of the major topic, "Composition of Air Pollutants."

The book is set in double column style, each abstract being individually numbered, and the index of authors refers to the abstract number. It has a paper cover.

This collection of abstracts is a very valuable addition to the literature of air pollution and its control. The authors are to be highly complimented for their painstaking work. The book belongs in the library of everyone interested not only in air pollution control and industrial hygiene, but in all libraries concerned with public health.

MORRIS B. JACOBS

The Bane of Drug Addiction—By Orin R. Yost. New York: Macmillan (60 Fifth Ave.), 1954. 144 pp. Price, $4.00.

This book discusses with the reader some of the severe medical and social problems faced by the narcotic addict and his family. Its purpose is to "arouse interest, knowledge and vigilance necessary to combat addiction."

Addiction is considered in eight chapters, from the standpoint of causes, drugs used, who is addicted, and the treatment of drug addiction. There is a final chapter on controlling drug traffic. About one-half of the text consists of case histories and interviews.

As is the author's stated purpose, the book appears to be designed for easy reading interest, rather than for study. At times the author is not completely accurate about the pharmacology of some drugs. He concludes, "In view of the present poor prognosis, we must face the fact that the real cure of drug addiction lies in its prevention."

The book adds no new knowledge to the practitioner, but should reawaken in him a vigilance to addiction. To other workers, there is much useful information easily absorbed. To the public, this persuasive text should build support for new laws to control drug traffic, and should also create a better understanding of the addict, and of the dangers entailed in excessive use of drugs.

SAMUEL A. GRAHAM, JR.

Streams-Lakes-Ponds—By Robert E. Coker. Chapel Hill, N. C.: University of North Carolina Press, 1954. 327 pp. Price, $6.00.

This compentently planned and written volume admirably fulfills the author's purpose of "holding a median course between the good reference works and an over-popular and perhaps misleadingly simple presentation of a story that has so many facets." Developed from a biological reference frame, the text is comprehensive, descriptive in character and is focused on the physical, biochemical and biological laws and principles which pertain to the ecology of all types of aquatic life.

The first part which is titled "Water and Its Content," sets the stage by a discussion of the physical, chemical and hydraulic properties and characteristics of water. The second and third parts are dedicated respectively to the ecology of "Running Water" and of "Still Water," including nontechnical descriptions of their plant and animal communities. Fishes as well as microorganisms are given their fair share of attention. Consideration of stream pollution is limited but well balanced. The section on the B.O.D. test contains the only two apparent technical errors in the book.

This very readable book is recommended by the publishers to the sanitarian and the engineer. Public health workers interested in aquatic biology and stream sanitation will find it valuable in developing a broader understanding of the subject. In progressing from the general to the particular, it

immediately precedes and complements such books as Phelps's Stream Sanitation. JOHN M. HENDERSON

Workmen's Compensation — Prevention, Insurance and Rehabilitation of Occupational Disability —By H. M. Somers and H. R. Somers. New York: Wiley (440 Fourth Avenue), 1954. 341 pp. Price, $6.50.

This volume reviews the entire story of workmen's compensation in the United States, beginning with a discussion of the challenge of occupational disability and the problems which created the need for compensation laws and extending through the various stages of development to the present day. In this sense the book will be valuable to students and to others who wish to have a panoramic background of the whole compensation picture plus an understanding of the important features of existing systems.

In addition, the book deals effectively with the provisions and limitations of existing laws, both from the standpoint of operation and from the point of view of social adequacy. Obviously, the unending variations in compensation coverage from state to state could not be explained in detail, but the authors have incorporated a surprising amount of such specific information, especially in the tables. Therefore, the book is also a valuable reference volume for those who work in the field of occupational health.

Sections are included on the preventive and rehabilitation aspects of occupational health. These deal with broad concepts, trends, and social considerations rather than with program detail.

Finally, the book includes appendixes which describe the most important facts of the Federal Employees Compensation Act, the British Industrial Injuries Insurance System, the Ontario Workmen's Compensation Act, and the Railway Workers and Seaman Under Federal Employer's Liability Acts.

Considering the controversial nature of much that relates to compensation, it is probably impossible to be completely unbiased in writing a volume of this sort, but this reviewer found the text definitely slanted toward the "liberal" side, or the position generally taken by labor. The reader will not, however, find this of serious concern even if he be biased in the opposite direction.

G. H. COLLINGS, JR.

Babies Are Human Beings—An Interpretation of Growth—By C. Anderson Aldrich and Mary M. Aldrich (2nd ed.). New York: Macmillan (60 Fifth Avenue), 1954. 122 pp. Price, $2.95.

It has been 16 years since the husband and wife team of Aldrichs wrote the first edition of this book. The years have seen considerable change in the practice and teaching of pediatrics and child raising. At the time the first edition was written in 1938 this clear, easy reading, and sympathetic exposition of growth and development changes in infants and children stood out as a sort of pioneer "voice in the wilderness." It gave comfort, security, and reassuring practical and scientific guidance to parents in helping them coordinate their efforts at raising children with the child's normal growth patterns. This was done with a common-sense approach mixed with a sense of humor and based on a combination of extensive medical training and practical experience in parenthood.

The book was first published at a time when the pendulum of pediatric practice stressed punctuality. Feeding, sleeping, and toilet training were usually calculated by the clock and the calendar at that time. In the intervening decade and a half, which took the widely admired and respected senior author from us, a war popularized psychiatry and

chemotherapy and antibiotics have diminished the physical side of pediatric practice, allowing greater emphasis on the emotional and developmental aspects of it. Now there are many books and articles on the same subject and it has become a fashionable and ubiquitous topic for newspaper columnists, magazines, free-lance writers, and others. Nevertheless, the second edition which has been brought up to date by Mrs. Aldrich with the help of George F. Munns, M.D., a prominent pediatrician from the midwest, still stands out strongly among the now almost voluminous variety of literature on the subject. It still retains the charm, accuracy, and common-sense combination of the scientific assessment of growth and development, mature philosophy, and practical parent lore of the original edition.

It is highly recommended reading for those who deal with children and who have not read it previously. It is also worth rereading if over two or three years have elapsed since it was last read.

EDWARD PRESS

The Practice of Sanitation—By Edward S. Hopkins and Wilmer H. Schulze (2nd ed.). Baltimore, Md.: Williams and Wilkins (Mt. Royal and Guilford Avenues), 1954. 466 pp. Price, $8.00.

This text brings together in one volume the procedures and practices employed for the control of urban and rural sanitation problems.

The authors have prepared the text for a twofold audience: first, for those with a general interest in environmental sanitation, such as health officers and nurses; and second, as a beginning text for the specialist—the sanitary engineer and the sanitarian. On the whole, this difficult goal has been achieved. Both groups will find the text of value as an up-to-date general reference.

The text is developed in 23 chapters. The first chapters deal with fundamental concepts, basic general principles, and administrative procedures. Eighteen chapters deal, respectively, with specific problems of urban and rural sanitation. In each, the public health problem is set forth, together with the control procedures employed in modern practice. A bibliography is available with each chapter for readers who wish more detailed information than is presented. A suitable subject index is included at the end of the text.

The book is organized simply and clearly. It is written in an easily read style. The choice of illustrative photographs, drawings, and tables is good. A high grade of paper, although glossy, has been used in printing.

This reviewer uses the book at present as a classroom text for public health students with a general interest in environmental sanitation and as a beginning text for those with a specialty interest.

WILLIAM C. GIBSON

Elements of Food Engineering—By Milton E. Parker; E. S. Harvey; and E. S. Stateler (Vols. 2 and 3). New York: Reinhold (330 West 42nd St.), 1954. Vol. 2, 360 pp. Price, $8.50; Vol. 3, 241 pp. Price, $6.75.

Volumes 2 and 3 were reviewed. Volume 3 was found to be a continuation of the former volume. The authors explain that the work was divided for more effective pedagogical presentations. One author is and the others were associated with the Department of Food Technology of the Illinois Institute of Technology.

These volumes deal with the production, preparation, processing, handling, packaging, and distribution of food. The subject matter is treated from the unit operations point of view, i.e., materials handling, cleaning, separating, disintegrating, pumping, mixing, heat exchanging, etc., to packaging. This work is essentially a textbook for food engineering students and food technologists.

The authors in one of the chapters state, "In text books discussing the unit operations of food engineering it is not practical to treat exhaustively every food product or the innumerable variations which might be considered. Therefore, no pretense is made of discussing all the materials handling modifications possible in the assembly of raw food materials. However, a conscientious effort has been made to select typical examples." While this aptly characterizes the limitations of this chapter, this limitation holds true for many of the others in both volumes.

This work, while it gives an insight into the problems of food production and the engineering aspects, treats the technology of food at great length. This may be necessary to introduce the engineering aspects. From the content this work seems more nearly to be a discourse in food technology with some engineering data. There are numerous illustrations and diagrams which are always helpful in this type of text. The introduction in Volume 2, almost 14 pages long, is an excellent outline of the principles of food technology. The books are quite readable and should make a most interesting college text.

The matter of food plant and equipment sanitation is gone over lightly. The authors state, "The important problem of plant sanitation, i.e., the cleaning of equipment and plant, is a service operation and will not be treated in this volume" (Vol. 2), nor is it covered in Volume 3. Sanitation operations are an important part of food production. Sanitarians have developed technics and materials to promote clean plants and produce clean food. Sanitation is a significant cost item in food plant operations. Yet, this seems to be mentioned only in passing and as a service operation. A work on food engineering or food technology is incomplete without a thorough exposition of sanitation as a unit of operation with its problems, technics, materials, and devices.

Both volumes would be useful additions to the library of a health department subdivision or other agency that is engaged in an extensive food regulatory program. A. E. ABRAHAMSON

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADRENAL CORTEX. Transactions of the Fifth Conference November 4–6, 1953. Packanack Lake, N. J.: Josiah Macy, Jr. Foundation, 1954. 187 pp. Price, $3.75.

ADVANCES IN VIRUS RESEARCH II. Kenneth M. Smith and Max A. Lauffer. New York: Academic Press, 1954. 313 pp. Price, $7.00.

ASSOCIATION OF BUSINESS MANAGEMENT IN PUBLIC HEALTH, THE. Papers presented at the Annual Meeting held in conjunction with the American Public Health Association, Buffalo, N. Y., October 11, 1954. Albany, N. Y.: Association of Business Management in Public Health (State Department of Health), 1955.

BIOCHEMICAL INVESTIGATIONS IN DIAGNOSIS AND TREATMENT. John D. N. Nabarro. Boston, Mass.: Medical Book Department, Little, Brown & Co., 1955. 299 pp. Price, $6.00.

CARE OF LABORATORY ANIMALS. Subcommittee on Diagnostic Procedures and Reagents,

APHA. New York: American Public Health Association, 1954. 32 pp. Price, $.75.

CLEAR CHANNELS: TELEVISION AND THE AMERICAN PEOPLE. Max Wylie. New York: Funk & Wagnalls, 1955. 408 pp. Price, $.75.

CONNECTIVE TISSUES. Transactions of the Fifth Conference February 8–10, 1954. Packanack Lake, N. J.: Josiah Macy, Jr. Foundation, 1954. 222 pp. Price, $2.25.

CONTROL OF COMMUNICABLE DISEASES IN MAN. (8th ed.). An Official Report of the American Public Health Association. New York: APHA, 1955. 219 pp. Price, $.60.

DISEASES TRANSMITTED FROM ANIMALS TO MAN. Thomas G. Hull (4th ed. rev.). Springfield, Ill.: Thomas, 1955. 717 pp. Price, $12.50.

DYNAMICS OF GROUP ACTION, THE. When Your School Board Meets (5th in a series). Daniel R. Davies and Kenneth F. Herrold. New London, Conn.: Arthur C. Croft, 1955. 44 pp. Price, $2.50.

EDUCATION FOR LATER MATURITY. Compiled by Wilma Donahue. New York: William Morrow, 1955. 338 pp. Price, $4.50.

EMOTIONAL PROBLEMS AND WHAT YOU CAN DO ABOUT THEM. William B. Terhune. New York: William Morrow, 1955. 190 pp. Price, $3.00.

EXPANDING HORIZONS IN MEDICAL SOCIAL WORK. Edited by Dora Goldstine. Chicago, Ill.: University of Chicago Press, 1955. 274 pp. Price, $5.00.

GEZONDHEIDSPROBLEMEN BIJ BEJAARDEN. R. J. Van Zonneveld. Assen, Netherlands: Van Gorcum, 1954. 250 pp. Img. f 7.25/Geb. f 8.75.

HEALTH SUPERVISION OF YOUNG CHILDREN. A Guide for practicing physicians and child health conference personnel. Prepared and authorized for publication by the Committee on Child Health of the American Public Health Association. New York: APHA, 1955. 180 pp. Price, $2.00.

HISTORICAL CHRONOLOGY OF TUBERCULOSIS, AN. Richard M. Burke (2nd ed.). Springfield, Ill.: Thomas, 1955. 125 pp.

I CURED MY CANCER. Mary Payne. New York: Vantage Press, 1955. 69 pp. Price, $2.50.

INDUSTRIAL VENTILATION. A Manual of Recommended Practice. American Conference of Governmental Industrial Hygienists (3rd ed.). Lansing, Mich.: Committee on Industrial Ventilation, 1954. Price, $3.00.

KREBIOZEN—KEY TO CANCER? Herbert Bailey. New York: Hermitage House, 1955. 312 pp. Price, $3.50.

LEG ULCERS. Their Causes and Treatment. S. T. Anning. Boston, Mass.: Little, Brown, 1955. 178 pp. Price, $4.00.

"LOOK TO THE SCHOOLHOUSES . . ." The Report of a Study Made at the Request of the Boston School Committee, Boston, Mass. Cambridge, Mass.: Center for Field Studies, Harvard Graduate School of Education, 1953.

LOW-COST EXHIBITS. Low Cost Exhibits Committee, Public Health Education Section, APHA. Springfield, Ill.: APHA Committee on Low Cost Exhibits, 1954. 100 pp. Price, $1.25.

MEDICAL CARE FOR TOMORROW. Michael M. Davis. New York: Harper, 1955. 497 pp. Price, $6.50.

MEDICAL MYCOLOGY. R. D. G. Ph. Simons. Houston, Tex.: Elsevier Press, 1954. 446 pp. Price, $9.75.

PEOPLE OF THE SHADOWS—STUDIES OF MORTALITY IN CINCINNATI. Floyd P. Allen. Cincinnati, Ohio.: Public Health Federation, 1954. 47 pp.

PREPAYMENT AND THE COMMUNITY. Financing Hospital Care in the United States, Vol. 2. Edited by Harry Becker. New York: Blakiston Division, McGraw-Hill, 1955. 356 pp. Price, $4.50.

PREREQUISITES OF GOOD TEACHING AND OTHER ESSAYS. Ernest Sachs. Hamden, Conn.: The Shoe String Press, 1954. 118 pp. Price, $2.50.

PREVENTION AND CONTROL OF INDIGENT DISABILITY IN WASHINGTON COUNTY, MARYLAND. Reporting facts from a six-month study. Financed by the Grant Foundation, New York, N. Y. New York: Community Research Associates, 1954. 100 pp.

PREVENTION AND CONTROL OF DISORDERED BEHAVIOR IN SAN MATEO COUNTY, CALIF. Findings from a six-month study. Financed by the Grant Foundation, New York, N. Y., and the Rosenberg Foundation, San Francisco, Calif. New York: Community Research Associates, 1954. 122 pp.

PRESCRIPTION FOR THE PUBLIC SERVICE. Personnel Report No. 541. E. S. Wengert, G. Lyle Belsley, and Charles H. Bland. Chicago, Ill.: Civil Service Assembly, 1954. 20 pp. Price, $2.00.

STUDIES IN THE SOCIAL SERVICES. History of the Second World War. S. M. Ferguson and H. Fitzgerald. New York: British Information Services, 1954. 367 pp. Price, $5.25.

STUDIES IN TUBERCULOSIS. R. G. Ferguson. Toronto, Canada: University of Toronto Press, 1955. 124 pp. Price, $3.50.

TRAINING FOR HUMAN RELATIONS, An Interim Report. F. J. Roethlisberger and others. Boston, Mass.: Division of Research, Harvard Business School, 1954. 198 pp. Price, $2.00.

TV—LEARNING TO USE IT. A Resource and Guide for Workshops. New York: New York Council of National Organizations. 40 pp. Price, $.50.

VIRAL AND RICKETTSIAL DISEASES OF THE SKIN, EYE AND MUCOUS MEMBRANES OF MAN. Harvey Blank and Geoffrey Rake. Boston, Mass.: Little Brown, 1955. 285 pp. Price, $8.50.

A Selected Public Health Bibliography with Annotations

Public Relations Pointers—This 135-page text on good public relations for water utilities (to be reprinted and sold as a manual) has a lot of practical ideas that might properly be put to work selling other community services—including particularly the health department.

ANON. Silent Services Is Not Enough. J. Am. Water Works A. 46, 12:1187 (Dec.), 1954.

The Eyes Have It—Mostly to restore to your vocabularly a forgotten word, this paper about a disease still far south of the Rio Grande—but willing to move northward—is called to your attention. We have the fly vectors here. And soon we will be penetrating infected areas when the Pan American Highway is completed. This will double the existing chance of spread now limited to the Latin Americans who come north seasonally to harvest our crops. It seems quite possible that this discussion will not forever remain academic.

DALMAT, H. T. Onchocerciasis. Nursing Outlook 3, 1:23 (Jan.), 1955.

Annotated Compilation—Twenty-three diseases for which skin tests have diagnostic value are listed. Technics of administration together with interpretation are pin pointed. It makes an imposing display.

FEIN, B. T. Skin Tests in the Diagnosis of Internal Medical Disease. Am. Pract. 5, 12:897 (Dec.), 1954.

As Others See Us—"I had not however given sufficient consideration to the extraordinary vitality and capability of taking punishment which our American colleagues most certainly possess." So begins a gracious but penetrating account of a British gentleman's visit to—you have guessed it—our late Buffalo meeting. You'll enjoy this.

GEFFEN, D. Some Impressions of the APHA Congress. M. Officer 92, 26:331 (Dec. 24), 1954.

Still Exploring—Among other interesting matters, three British M.O.H.'s examine the inherent possibilities of health education. The script of a play is presented. Their philosophic conclusions about it will be found provocative by health administrators hereabouts who wonder what all the shouting (health educational variety) comes to.

HOEY, R., et al. "King Alfred" A Satirical Comedy in One Act for the Clean Food Campaign. M. Officer 92, 25:317 (Dec. 17), 1954.

Chemicals for Cancer?—It seems within the realm of possibility that

pharmacologic agents will someday be created to counteract cancer growth—though they haven't yet. A variety of compounds that have some effect suggest approaches to the problem and they are listed and discussed.

HOLLAND, J. F. The Chemical Control of Cancer. Pub. Health Rep. 69, 12:1151 (Dec.), 1954.

A Matter of Public Works—Reasons that prompted Baltimore to use hydrofluosilicic acid as the chemical with which to fluoridate its water supply may seem of only academic interest to many of us—but probably the matter is something we should know about.

HOPKINS, E. S. How Baltimore Fluoridates. Water & Sew. Works 101, 11:473 (Nov.), 1954.

New Hazard—"Public health controls (of the use of radioactive materials) have kept pace, and continue to do so, with the increasing scope and growth of the industry." So concludes this officer of the AEC, who tells how controls are maintained by federal, state, and city cooperation.

HUTTON, G. L. Public Control of Radiation Emitters. Pub. Health Rep. 69, 12:1133 (Dec.), 1954.

Phenol Coefficients Plus—For those who buy disinfectants in quantity—either of the "hospital and surgical" or the "housekeeping and janitorial" type—suggested specifications are offered here to help get the best and the most for the money.

KLARMANN, E. G. Modern Disinfectants. Modern San. 6, 12:15 (Dec.), 1954.

"Acres of Diamonds"—Interpreted for readers under 50, the heading implies: neglected treasure in your own back yard. One would think that the volunteer would have been so widely employed by so many health departments for such a variety of services that any story about his training and placement would be too "old hat" to be seriously reported upon. But the chances are this account will seem like a pioneering yarn right off the Oregon Trail.

LOTT, M. K. Volunteer Aides in a County Health Department. Nursing Outlook 2, 12:623 (Dec.), 1954.

Large Order—Two papers do much to clarify for us the British concept of the health visitor's status. Combined public health nurse, midwife, social worker, and friend, she "concerns herself with the minds and morals of her families, with neglected children, delinquent youth, unsuccessful marriage, physical and mental handicaps, and lonely old age as well as normal family life."

O'CONNELL, P. E. The Education and Training of Health Visitors (and) AKESTER, J. M. The Duties and Responsibilities of Health Visitors. J. Roy. San. Inst. 74, 12:1131 (Dec.), 1954.

Stretching the Pound—Whither-are-we-drifting and panoramic looks at the complete British health service inevitably lead to a discussion of available pounds and existent manpower (mostly womanpower). Some of the conclusions reached might stimulate us to examine more objectively our own domestic problems of high policy.

PICKUP, J. W. Money and Manpower. Public Health 68, 3:35 (Dec.), 1954.

Such Another We Shall Not See—By not the widest stretch of imagination could this unaffected, honest, and human recital be labeled public health administration (domestic). But any local practitioner of that art who fails to look up this short paper will deprive himself of a fine sentimental experience. The writer's name and the title tell enough of this paper's promise.

SCHWEITZER, A. Medicine in the Jungle. J.A.M.A. 156, 17:1547 (Dec. 25), 1954.

Twenty-Five Thousand Strong—If you want to know the numbers and

varieties of nursing homes serving your state or your neighbors last summer then here is a helpful source of information.

SOLON, J., AND BANEY, A. M. Inventory of Nursing Homes and Related Facilities. Pub. Health Rep. 69, 12:1121 (Dec.), 1954.

Progress Reported—Current programs to meet individual needs of partially-seeing school children vary because no one service suits all children. The objective is the same, however; it is to instill good sight-saving habits so that each child profits best by help available to him.

TUDYMAN, A. Progress in Education of the Partially Seeing in Oakland. Sight-Saving Rev. 24, 4:226 (Winter), 1954.

By Hunch and Trial—The fellow who fails to be intrigued by stories of early exploratory researches must have a small bump of curiosity indeed. Early nutritional researches seem to make particularly absorbing stories. Here is such a reminiscence and one of the best of its kind.

WADDELL, J. Early Experiences with Iron and Copper—A Retrospect. Nutrition Rev. 12, 12:353 (Dec.), 1954.

More of Everything Except "30-Days"—Based upon experience in the District of Columbia is a balanced consideration of measures needed to make a dent in the problem of alcoholism. Though a wealth of discussion has been devoted to this social problem, in most cities the progress made in denting the deficiencies is scarcely visible to the naked eye of the hopeful and watchful observer.

ZAPPALA, A., AND KETCHAM, F. S. Toward Sensible Rehabilitation of the Alcoholic. Pub. Health Rep. 69, 12:1187 (Dec.), 1954.

If additional information is desired regarding the articles listed in the Bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. Pract. (American Practitioner), 227–231 S. Sixth St., Philadelphia 5, Pa.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago 10, Ill.
J. Am. Water Works A. (Journal of the American Water Works Association), 521 Fifth Ave., New York 17, N. Y.
J. Roy. San. Inst. (Journal of the Royal Sanitary Institute), 90 Buckingham Palace Road, London, S.W. 1, England.
M. Officer (The Medical Officer), Whitefriars House, 72–78 Fleet St., London, E.C. 4, England.
Modern San. (Modern Sanitation), 855 Avenue of the Americas, New York 1, N. Y.
Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.
Nutrition Rev. (Nutrition Reviews), Nutrition Foundation, Inc., Chrysler Building, New York 17, N. Y.
Public Health, Society of Medical Officers of Health, Tavistock House, Tavistock Sq., London, W.C. 1, England.
Pub. Health Rep. (Public Health Reports), Superintendent of Documents, Gov. Ptg. Office, Washington, D. C.
Sight-Saving Rev. (Sight-Saving Review), National Society for the Prevention of Blindness, Inc., 1790 Broadway, New York 19, N. Y.
Water & Sew. Works (Water and Sewage Works), 22 West Maple St., Chicago 10, Ill.

Association News

EIGHTY-THIRD ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
KANSAS CITY, MO., NOVEMBER 14–18, 1955

Objective—Local Health Services

The North Dakota Public Health Association publishes a News Letter about six times a year. Its masthead has the legend "Public health is everybody's business." By way of carrying out this truth, the November-December, 1954, issue of the News Letter features "adequate local health services." It reminds the members that the 1954 meeting adopted as a primary objective "development and promotion of adequate local health services on a state wide basis" through organizing district local health units. A committee to work on this objective was appointed. The News Letter urges all members to work for this goal through legislation, through the promotion of local health councils, and through "talking up" local health districts at every opportunity. "The North Dakota Public Health Association has an obligation to see that an effective public health service is provided for every citizen and that adequate public health monies are appropriated."

Massachusetts Charts Its Future

At the January meeting of the Massachusetts Public Health Association, the business session considered a number of questions about the current activities, responsibilities, and relationships of the association, which has a study committee to determine whether there is need for re-evaluation of purposes and functions. Some of the questions the group is asking itself are: Is MPHA duplicating the work of other professional organizations? Should the membership include more persons interested in public health as contrasted with professionals? What responsibility does the association have for educating local boards of health? What is the relationship of MPHA to allied groups such as the Central Health Council, the Amherst Conference, and the New England Health Institute? In what directions should the activities be expanded?

Scientific Exhibits

The Committee on Scientific Exhibits is entertaining applications for scientific exhibit space at the 83rd Annual Meeting in Kansas City, Mo., November 14 to 18. The application form may be obtained upon request to the Association office.

APHA membership application blank on page XXIX

Employment Service

The following pages present information for those seeking public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSTIONS AVAILABLE

Health Educators—Four vacancies: two state and two counties. Must have M.P.H. degree and preferably some experience. $379–$459; $360–$440. Merit System, Social Security, and State Retirement. A. T. Johnson, Personnel Director, Oregon State Board of Health, P.O. Box 231, Portland 7, Ore.

Health Education Consultants—with California Bureau of Health Education. Must have two years' recent experience in public health education programs, and master's degree from school of public health accredited by the APHA. Graduate study must have had emphasis on health education. $458–$556. State Personnel Board, 1015 L St., Sacramento 14, Calif.

Sanitary Engineer, and Industrial Hygiene Engineer—Engineering degree and at least one year of experience required. Forty-five years maximum age considered. $320–$470 per month. Florida Merit System, 307 Knott Bldg., Tallahassee, Fla.

Sanitary Engineer—to help develop and supervise a general environmental health program for a large county. Up to $7,000 based upon training and experience. State qualifications and experience. W. B. Prothro, M.D., Kent County Health Dept., 316 Ottawa Ave., N.W., Grand Rapids 2, Mich.

Sanitarian—for general sanitation program in a health department serving a city of 77,000 population. $346–$389 per month, plus hospital and surgical insurance and pension benefits. Commissioner of Health, City Hall, Racine, Wis.

Sanitarian—Rural, semiurban area; generalized program, including milk and food control under supervision of the sanitary engineer, in newly established Wyoming County Health Department. County car provided. College degree in agriculture, veterinary medicine, or other science, and two years' experience or equivalent. $4,500–$4,800. Roger Knipe, M.D., Commissioner of Health, Warsaw, N. Y.

Assistant Director—For public health laboratories $575–$715 per month, Los Angeles City Health Department. Selection by interview.

Biostatistician—$355–$440 per month. Los Angeles City Health Dept. Selection by interview. Civil Service, Room 5, City Hall, Los Angeles 12, Calif.

Sanitarian—$285 to start without experience. General sanitation for a one-county unit. R. Sherwin Johnston, M.D., Medical Director, Otero County Health Dept., La Junta, Colo.

Director, Division of Preventive Medicine and Director of Division of Chronic Disease Control—Vacancies in Kentucky in expanding and interesting programs. Each position, $11,000. Bruce Underwood, M.D., Commissioner, Kentucky State Dept. of Health, 620 S. Third St., Louisville 2, Ky.

Chief, Bureau of Venereal Disease and Cancer Control—$833–$916. M.D. degree. Four years' experience in public health; one year of administrative experience and eligibility for Board certification or equivalent required.

Chief, Bureau of Nutrition—$383–$445. M.S. in nutrition and three years' experience or equivalent required.

Dept. of Civil Service, Territory of Hawaii, 825 Mililani St., Honolulu 13, Hawaii.

Bacteriologist (Laboratory Technician II)—$311–$378;

Sanitarians—$327–$397;

Supervising Public Health Nurse—$360–$438 and

Public Health Nurses—$360–$397.

Requirement: certification or eligibility for certification with the state of California in the respective field. County Civil Service Office, 236 Third St., San Bernardino, Calif.

Public Health Nurses—$3,995. Civil service, retirement, three weeks' annual vacation, 12 days annual sick leave which may be accumulated to a maximum of 120 days; 35-hour work week (32½-hour work week in July and August). Cars provided. Director of Public Health, 30 Church St., New Rochelle, N. Y.

Public Health Nurse—for staff position in generalized program. Minimum requirements: One year of academic work in public

health and two years' field experience under supervision. $290–$365. Merit system appointment. Must have automobile; seven and one-half cents mileage allowance. Director, Palm Beach County Health Dept., Box 29, West Palm Beach, Fla.

Supervising Public Health Nurse—with degree for small county health department. Two other public health nurses. $4,200–$4,500 per annum. Car allowance. J. D. Heaslip, M.D., Director, Health Center, Hastings, Mich.

Public Health Nurse Director—for community health service and coordinator of MCH program, working toward integration with the health department. Master's degree desirable; also experience in public and private (VNA) agencies on administrative or supervisory level. Civil service appointment. Grand Rapids Health Dept., 303 Ionia Ave., N.W., Grand Rapids, Mich.

Public Health Nurse—for teacher of public school health position in Chicago public schools. Six-hour day, five-day week, 40-week year. Salary, with B.S. or A.B., $3,400–$5,650; with M.S. or M.A. $3,650–$6,150. Adjustment for previous experience allowed following certification. Require baccalaureate degree and program of study in public health nursing, plus one year of experience in community nursing. Madeline Roessler, R.N., Supervisor, Chicago Public Schools, 228 N. LaSalle St., Chicago 1, Ill.

Sanitary Engineer—as director of Division of Environmental Sanitation. Staff of five sanitarians and inspectors. Wyoming-Genesee County Health Departments, 70,000 population. Applicants must meet New York State Civil Service requirements for Senior Public Health Engineer. $7,000–$8,000 plus $200 mileage. Dr. Roger G. Knipe, Commissioner of Health, Genesee County Health Dept., 127 North Street, Batavia, N. Y.

Medical Health Officer—for Shelby-Effingham County Health Department; Central Illinois location; good schools; excellent rural communities; $9,000–$11,000; may start above minimum; must have capacity for good public relations. Mr. J. H. Griffin, Teutopolis, Ill., or to Dr. O. G. Kauder, Findlay, Ill.

Public Health Nurses—must be eligible for registration in the state of Colorado. Certificate in public health nursing and experience desired. Combined rural and Indian Service nursing in scenic Mesa Verde and near Durango. Youthful, progressive unit. $280–$300. Director, San Juan Basin Health Unit, Durango, Colo.

Chief, Division of Nursing Services—$5,491–$6,708. Requirements: MPH, five years of approved public health nursing experience, three years in supervisory capacity.

Chief, Division of Tuberculosis Control—$6,427–$8,580. Requirements: Graduate from Class A medical school, eligibility for Maryland license to practice medicine, 3 years' experience in tuberculosis and chronic illness work.

Supervising Medical Social Worker—$4,576–$5,324. Requirements: Bachelor's degree, two years of graduate work, three years' experience in medical-social work, one year in supervisory capacity. Personnel Office, Montgomery County Office Bldg., Rockville, Md.

International Health Vacancies

Chief Public Health Adviser—FOA Mission, Girishk, Afghanistan. M.D. and M.P.H. degrees plus experience in responsible local or state public health administration. Duties: to advise the Royal Afghan Ministry of Public Health on development of an expanded public health service including establishment of a demonstration public health center for the Helmand Valley Area.

Medical Officer—FOA Mission, Basra, Iraq. M.D. and M.P.H. degrees plus experience in responsible local or state public health administration. Duties: to organize and develop a first-class Western type public health organization throughout Basra Liwa; to serve as director of the public health demonstration and training project.

Sanitary Engineer (Regional)—FOA Mission, Iran. B.S. in Civil or Sanitary Engineering plus experience in environmental sanitation. Duties: to plan and develop a sanitary engineering program in a regional health department including training of sanitary engineering counterparts.

Industrial Hygiene Engineer—FOA Mission, Rio de Janeiro, Brazil. B.S. in Sanitary or Chemical Engineering plus experience in responsible direction of industrial hygiene field work. Duties: to advise national, state, and local governmental agencies on the development and organization of industrial hygiene services including surveys for improvement of sanitary, health, and safety standards in industry and the training of Brazilian technicians.

Health Education Consultant—FOA Mission, Quito, Ecuador. M.P.H. degree plus experience with local, state, or federal public health agencies in community public health education. Duties: to advise national agencies in the promotion, planning, and carrying out of community public health education programs; to conduct educational programs for health educators and related personnel.

Chief Public Health Nurse—FOA Mission, Paramaribo, Surinam. B.S. degree in public health nursing mandatory; M.S. desirable. Minimum five years' experience in public health nursing with part of experience in supervision. Duties: to promote and develop public health nursing in rural health

units of the Cooperative Service; to assist in planning and conducting a training program for public health nurses, including auxiliary nursing personnel.

Two-year tour minimum for each. Living allowance applicable. U. S. Public Health Service, Division of International Health, Washington 25, D. C.

POSITIONS WANTED

Physician—Woman M.D., D.N.B., M.P.H., Diplomate of the American Board of Preventive Medicine. Experience includes teaching, clinical obstetrics and pediatrics and generalized public health program in local health department. Prefer school health and MCH. East or Middle West. **Box PH-51,** Employment Service, APHA.

Public Health Educator—M.S.P.H.; four years' experience with official and voluntary agencies in metropolitan and rural areas. Age 31. Male. **Box HE-64,** Employment Service, APHA.

Health Educator—M.A. in health education; three and one-half years' experience as county health educator working for voluntary agency in cooperation with official agencies and other voluntary agencies; radio, newspaper, and public speaking experience; will relocate; available April 1. **Box HE-65,** Employment Service, APHA.

Ph.D. in Parasitology—Public Health—Desires a related position in research or field work. Experience consists of six years in research field work and university instruction. **Box L-44,** Employment Service, APHA.

Veterinarian-Sanitarian—Five years' sanitation experience. B.S., D.V.M. degrees with half completed M.P.H. Any type position in sanitation. **Box V-19,** Employment Service, APHA.

Executive Director position of a voluntary health association. Five years' experience in state tuberculosis and heart associations. Field training in metropolitan health department and local mental hygiene association. M.P.H., B.S., in school health; certificate, Yale School of Alcohol Studies. Male, 31, veteran, married. **Box C-26,** Employment Service, APHA.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Public health physician to direct preventive health division, city health department; East, $12,000–$15,000. (b) Associate professor of preventive medicine and assistant health officer; South. (c) Nursing director and two staff nurses; county health department; excellent medical leadership; California; (d) Public health nursing consultants; South America. (e) Public health nursing director; duties: developing public health nursing activities in unorganized counties, serving as consultant; resort city, Southwest; $5,300–$6,400. (f) Health educator; health center serving as teaching center for public health workers; minimum $6,500; East. (g) Sanitary engineer qualified supervise state health department engineering activities in 10 counties; Midwest. (h) Public health bacteriologist; California. (i) Pediatrician or obstetrician with maternal and child health experience, public health sanitary engineer and biostatistician; school of public health recently established by well known university; foreign. Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES WANTED

(a) Public health nursing administrator; B.S. (nursing), M.A. (counseling, guidance); year's graduate training public health nursing, midwestern university; experience includes serving as director, public health nursing, state college, and as consultant, city health department; considerable teaching. (b) Physician, M.P.H., Dr.P.H., Johns Hopkins; extensive public health experience abroad; Diplomate, American Board. (c) Health educator; M.P.H., Harvard, three years, assistant director and six years, director state health department. Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

News from the Field

WHO News

Training Hilots in the Philippines

Out of every 10 children born alive in the Philippines, one dies before his first birthday. Of these, a quarter die in the first week of life. Because of this record WHO and UNICEF in the summer of 1954 began a training program for midwives, known as hilots. With WHO technical guidance 25 health centers are training local midwives in the prevention of infection, delivery technic, and postnatal care. At the end of two years it is expected that 2,000 hilots will have learned basic modern methods of maternal and child care.

UNICEF supplies teaching aids, $13 stipends to cover hilots' travel and meal expenses, and midwife kits, for which the government provides refills. The government also maintains the centers and pays instructors' salaries. The hilots agree to encourage expectant mothers to visit the centers for prenatal checkups, to report deliveries, and to call medical assistance for abnormal cases. The hilot learns that the goal is not only safe delivery, but to report the baby alive and well at the end of the first year.

The Philippines country officer for UNICEF is Perry O. Hansen, an American citizen born in Shantung. He reports checking over the birth records kept by a group of hilots of one town who had completed a 12-week training course. With gratifying regularity he found "Buhay" on the records—which means alive and well.

Regional Polio Laboratories

WHO has established a network of regional polio laboratories. One of their main tasks will be to study and identify the various polio viruses isolated in their areas, as well as other viruses responsible for diseases similar to polio. Among the latter are encephalomyelitis. The polio research program is considered a long-term project to obtain the necessary knowledge for applying control measures now under development. "No immediate or dramatic results can be expected."

The polio laboratory for the Americas is located in the Yale University School of Medicine under the supervision of John R. Paul, M.D., professor of preventive medicine. For Africa, the South African Institute for Medical Research in Johannesburg has been designated; for Europe, the Laboratory of the Institut Pasteur, Paris; for the Eastern Mediterranean, the Virus Laboratory of Hebrew University, Jerusalem. In Southeast Asia it is expected that the Indian Medical Research Council, Polio Unit, Grant Medical College in Bombay will be selected. No laboratory has yet been designated for the Western Pacific.

Among other polio activities is a study of the recent incidence of the disease, the report of which is published in the March, 1955, WHO Bulletin. Also a Monograph of Poliomyeliltis is shortly to be off the press.

Beating DDT-Resistant Mosquitoes

Unless malaria control programs throughout Southeast Asia are greatly speeded up at once, they may risk complete failure within a few years, according to Dr. Chandra Mani, WHO regional director for Southeast Asia. If fought energetically enough now, before the development of DDT-resistance in some species of malaria-carrying mosquitoes, malaria could probably be wiped out as a public health problem in the near future. Of approximately 250 million people living in malarious areas of Southeast Asia, 106 million have been covered so far by malaria control operations.

The cost of intensifying malaria control measures now, Dr. Mani said, would undoubtedly be far less than the price Asian countries would have to pay if they should miss the opportunity of defeating the disease while DDT spraying was still effective.

How long DDT can still be used successfully against the malarial mosquito is impossible to foresee. As little as a year and a half ago there had been no evidence of DDT-resistance in any of the types of mosquitoes responsible for malaria transmission in Southeast Asia. However, resistance is known to be developing in some species. The older methods of fighting the disease are considered too expensive to apply on a large scale in the economically underdeveloped countries. It is only with the advent of the newer technic of residual spraying of insecticides that malaria control has come within the financial reach of the poorer areas of the world.

At the Second Asian Malaria Conference in Baguio, the Philippines, in November, 1954, the need for fundamental research on the problem of insect resistance to insecticides was cited. The conference brought together 42 malariologists from 13 countries of the Southeast Asia and Western Pacific regions. In a resolution, the Baguio conference recommended collection of information on insect susceptibility to insecticides in view of the first appearance of DDT-resistance among a malaria-carrying type of mosquito in the two regions.

National Advisory Committee Meets

The National Advisory Committee on Local Health Departments held its seventh annual meeting in New York City on January 24. Nearly 100 persons, representing nearly as many national organizations in health, civic, and service areas, spent a day analyzing the varied citizen attitudes that affect the development of local governmental health services.

A four-man morning panel reviewed five actual situations, bringing out some of the attitudes involved—in the successes, the failures, and the situations still in the study stage. Hunterdon County, N. J., was presented by one of its leading citizens, Lloyd B. Wescott; Dutchess County, N. Y., by Homer N. Calver, active in citizen movements in the county; Columbus and Franklin County, Ohio, by Sewall Milliken who as health educator in the State Health Department had recently supervised a community health survey of the county; Bucks and Northampton Counties, Pa., by R. Winfield Smith, director of the state tuberculosis society.

William R. Willard, M.D., summarized the panel and guided the afternoon question and answer period in which a community organizer, a local health officer, a sociologist, and a psychiatrist took part. They were, respectively, Clarissa Boyd, Julius Prince, M.D., Professor August B. Hollingshead, and Mary Mercer, M.D.

The importance of understanding and respecting existing citizen attitudes and how they came about was stressed. There will be little enthusiasm for increasing health services unless the projected services can be related to the needs of which people are aware. The cost of services must be understood in at least two relationships; first, in relation to other services, such as fire or police protection, schools, and many others. Second, the relatively low cost of prevention as compared to cure; early case finding of tuberculosis as opposed to hospital care; mental hygiene and child guidance clinics as opposed to mental hospital care; the cost of a water pollution control program as opposed to the cost of disease, loss of recreational facilities, depression of real estate values, and many other adverse effects of polluted waters.

The members of the health team as a part of the community sharing in the various community programs are a vital part in making health services understood, building support for them, and most importantly making them responsive to the community's felt needs. And finally there is the need to involve every citizen, the obstetrician as well as the pregnant woman and her husband, the laboring man, the industrialist, the school teacher, and the differing clubs, churches, and other organizations into which people everywhere group themselves.

At the luncheon business session the following officers and executive committee members were elected:

Honorary Chairman—Haven Emerson, M.D., American Public Health Association

Chairman—Sherwood A. Messner, program services director, United Cerebral Palsy Associations

Vice-Chairman—Mrs. Theodor Oxholm, chairman, Spokesmen for Children (also represents Maternity Center Association)

Secretary—Mrs. Robert F. Leyden, president, National Council of Women of the United States and director of Women's Activities, American Cancer Society

Clarissa Boyd—director, Program Development Services, National Tuberculosis Association

Robbie Hunt Burton—consultant on welfare services, Association of the Junior Leagues of America

Harold T. Friermood—secretary, Health and Physical Education, Young Men's Christian Association, National Council

Arthur Kneerim—director, Field and Health Agencies Bureau, Metropolitan Life Insurance Company

Marion Kolbye, M.D.—American Federation of Soroptimist Clubs and practicing physician, Philadelphia

M. F. Krughoff—director, Health and Welfare Planning Department, Community Chests and Councils

Berwyn F. Mattison, M.D.—chairman, Subcommittee on Local Health Units, American Public Health Association and Pennsylvania state health officer

Mrs. Harold V. Milligan—health chairman, General Federation of Women's Clubs

Mrs. Lou B. Paine—Altrusa International, national director of field operations, Camp Fire Girls

Julius Rothman—Congress of Industrial Organizations, Labor Participation Department, Community Chests and Councils

Morton D. Schweitzer, Ph.D.—scientific director, Muscular Dystrophy Associations of America

Mrs. Sadye J. Williams—National Association of Negro Business and Professional Women's Clubs

The National Advisory Committee is sponsored and staffed by the National Health Council. It grew out of the Princeton Conference on Local Health Units in 1947 at which the representatives of some 65 national organizations pledged themselves to use their resources and influence to create a public opinion in support of adequate local official health services everywhere in the country. This conference was held under the auspices of the Subcommittee on Local Health Units of the American Public Health Association, following that committee's report "Local Health Units for the Nation." That committee and the Princeton conference group early in 1948 asked the National Health Council to sponsor and staff it.

The National Advisory Committee publishes an occasional news bulletin, The November–December, 1954, issue, Local Health Units for the Nation (Vol. 8, No. 4) was the 46th.

Recommendations for Long-Term Care

The Commission on Chronic Illness has adopted a series of recommendations for long-term patients with special reference to the planning of facilities. These are published in the Chronic Illness News Letter of January, 1955, and will be incorporated as part of a complete series of recommendations being developed for a forthcoming report of the commission.

The recommendations are classified into three main divisions, general, the patient at home, and the patient in an

institution. The last named has separate divisions for all institutions, hospitals, mental institutions, and nursing homes, and related institutions.

A summary of the general recommendations follows:

Care of the chronically ill is inseparable from general medical care. Further, care and prevention are inseparable; the basic approach to chronic disease must be preventive.

Adequate care of the long-term patient requires frequent evaluation and easy flow back and forth among home, hospital, and related institutions.

The most economical care of the long-term patient is that which returns him as quickly and fully as possible to the highest attainable state of health and social effectiveness. Cost of programs, therefore, must be measured in terms of human values, effectiveness, and productivity.

Greater community emphasis should be placed on home care.

Rehabilitation is an inherent part of adequate care, both for employability and a higher level of personal care.

Agencies furnishing specialized services should re-examine their policies and practices, particularly in strengthening the personal relationship of physician and patient to assure the best modern medical care.

Coordination and integration of services and facilities are indispensable to good care.

Programs of care must be tailored to fit local situations and must be directed to the needs of all patients and not alone to specialized groups.

Congress is urged to clarify fully its responsibility to the veterans who need long-time care and to integrate its programs with others in the community.

Personnel shortages must be overcome by better recruitment, better salaries, and more aid with the costs of education.

There is great need for continued emphasis on the development of comprehensive community-wide preventive programs in the mental health field, since the mental illness problem permeates the entire field of care of the long-term patient.

In the recommendations for the patient at home, the continuous involvement of the personal physician is stressed, as is the need for many other types of service—nursing, homemaker service, occupational and physical therapy, dental care, nutrition, social service, among them. The proper role of outpatient care is outlined. Adequate housing is necessary to adequate community programs for the care of the long-term patient.

Among the general recommendations for institutions caring for long-term patients is one that he should be in the type of institution most fitted to his need—not maintained, for example, in a high-cost facility when a less expensive one is available to serve his needs as well or better. The wide range of institutional facilities needed suggests some readjustments in existing institutions and provision of some services on a regional basis.

Standards of care should be brought up to those of care for acute illness, with particular relation to medical supervision, admission and discharge policies, and professional and administrative arrangements.

Copies of the News Letter containing these recommendations or permission to reprint are available from the Commission on Chronic Illness, 615 N. Wolfe St., Baltimore 5, Md.

The Commission on Chronic Illness is an independent national agency founded by the American Hospital Association, American Medical Association, American Public Health Association, and the American Public Welfare Association for the purpose of studying problems of chronic disease, illness, and disability. The APHA is one of 13 national agencies that contribute to the support of the commission.

A Neighborhood Planning Council

The American Council to Improve Our Neighborhoods, known as ACTION, was organized in November, 1954, at a meeting held under White House auspices. Its stated purpose is "to imple-

ment the conservation and improvement of existing housing and clearance of slums." This nonprofit, nonpolitical agency has organized three divisions, research, field service, and information and education. Major General Frederick A. Irving (Ret.) is president of the new organization.

Martin Meyerson, on leave from the University of Pennsylvania where he is in the Department of Land and City Planning and on the Research Institute for Urban Studies, heads the Research Division.

David C. Slipher heads the Field Service Division which "will advise and assist communities and organizations making an effort to develop neighborhood improvement programs." Mr. Slipher was formerly technical director of the Kaiser Community Homes and the Fritz B. Burns Organization in Los Angeles. He is a member of the Building Research Advisory Board of the National Academy of Sciences.

The acting director of information and education is Clyde M. Vandeburg who will be its consultant. He is executive consultant to the United States Information Agency and the Department of Commerce.

A committee of ACTION is meeting with the Joint Committee on Housing and Welfare of the National Social Welfare Assembly and the National Association of Housing Officials to explore common interests of the groups and work out cooperative relationships.

ASHVE Has New Name

The professional society long known as the American Society of Heating and Ventilating Engineers is now known as the American Society of Heating and Air-Conditioning Engineers, Inc., with offices at 62 Worth St., N. Y. 13, N. Y. A. V. Hutchison is the executive secretary.

New Name for "Military Surgeon"

The official journal of the Association of Military Surgeons of the United States, known as The Military Surgeon, has been renamed Military Medicine, as of January 1, 1955. This title is reported as better covering the scope of the journal and the broad field of medical specialty to which the association is devoted.

Milwaukee's New Housing Division

A Division of Housing has been approved within the Bureau of Environmental Sanitation of the Milwaukee Health Department. Funds have been made available and 14 staff positions approved. They are a director, field supervisor, 10 inspectors, and two clerks. The city health officer, E. R. Krumbiegel, M. D., had asked for a staff of 26 persons.

The city is also considering a new housing code to replace one that is reported to be outdated.

Rehabilitation Film Award Made

The first International Rehabilitation Film Award was announced at the Sixth World Congress of the International Society for the Welfare of Cripples in The Hague late in 1954. The winner is "A New Beginning," which was produced in 1952 at the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center. It portrays the application of coordinated medical, social, educational, and vocational services to the rehabilitation of a paraplegic miner. The international selection panel found it to "present the problems of one disabled person in a way that can be applied to all persons and all forms of disability."

The next award, which is supported by the Irving Geist International Film Library, will be presented at the Seventh

International Congress in London in 1957. Films produced after October 1, 1954, and dealing with any phase of services for the disabled are eligible. Further details from Film Librarian, International Society for the Welfare of Cripples, 127 E. 52nd St., New York 22, N. Y.

Trachoma Research Project

The Harvard School of Public Health and the Arabian American Oil Company are undertaking a five-year, half million dollar research program on the prevention of trachoma. The Harvard School is providing, under the direction of its dean, John C. Snyder, M.D., professional and technical staff for studies in the Middle East and in its own laboratories in Boston. Aramco is contributing $100,000 and making available the facilities, including three modern laboratories, of its new medical center in Dhahran, Saudi Arabia.

New Medical Research Institute

Ground was recently broken in Ridgefield, Conn., for the New England Institute for Medical Research, a nonprofit organization supported by private grants and gifts. Personnel will include physicians in various specialties and doctorate personnel in nuclear physics, chemical engineering, electronics, histology, bacteriology, immunology, biochemistry, and radiobiology. A grant has been made for a linear electron accelerator for investigation in neoplastic diseases. There will be facilities to make isotopes for both diagnosis and therapy available to the physicians in the area. The institute is expected to be in operation early in 1956. Its executive director is John H. Heller, M.D., assistant professor of medicine and physiology, Yale University School of Medicine and associate physician, Grace-New Haven Community Hospital.

Paper Bags for Garbage in Hartford

Double-ply, water-resistant paper bags as liners to 20-gallon garbage cans are being tested in Hartford, Conn. The purpose of the new system is to reduce fly and rodent breeding, lighten the job of garbage collection, and eliminate litter from streets. In Hartford, presently a single weekly collection is made and garbage and refuse, including the paper bags, are incinerated. The paper-bag liners at a cost of six and one-half cents each are provided by the city. The total cost for a city of the size of Hartford is estimated to be about $300,000 per year, some of which may be saved in the cost of collection. Further information, including a detailed analysis of the results of the Hartford experiment, from Union Bag and Paper Co., Woolworth Building, New York, N. Y.

What's New in Fatigue Research

The Medical Research Division of the Lorenz Foundation has published a brief summary of the present status of research on fatigue, rest, and relaxation in the United States. It gives a short review of the work done at different universities in this country. It points out that even with the growth of the literature on fatigue, relaxation, and posture in this country during the last 10 years, the number of articles and books is small in comparison with that of European countries.

The Lorenz Foundation was established several years ago to promote and sponsor research on the physiology of fatigue, exhaustion, stress, relaxation, and rest in relation to preventive medicine and public hygiene. It is currently supporting "physiological studies of rest as a recovery from fatigue" being conducted by Robert C. Darling, M.D., professor of physical medicine and rehabilitation, Columbia University College of Physicians and Surgeons. Director of

the foundation's Medical Research Division is W. L. Colze, M.D., from whom the report of the survey may be obtained; 5 E. 88th St., New York 28, N. Y.

Pennsylvania Advisory Board

The newly elected governor of Pennsylvania, George M. Leader, has appointed a temporary advisory committee of students of government to prepare a working outline of state activities for his guidance. Its members include Norman H. Topping, M.D., vice-president for medical affairs of the University of Pennsylvania, representing the health department; James P. Dixon, M.D., Philadelphia commissioner of health, representing the Welfare Department; Harold F. Alderfer, professor of political science and executive director of local government, Pennsylvania State University; Samuel S. Fels, professor of governmental administration and executive director, Institute of State and Local Government, University of Pennsylvania; and Stephen B. Sweeney, M.D., practicing physician.

To head the state's health service, Governor Leader has appointed Berwyn F. Mattison, M.D., health officer of Buffalo-Erie County, N. Y., for the past seven years, during which time the health services of the city of Buffalo and Erie County were consolidated into a single jurisdiction serving nearly a million persons. Dr. Mattison is also chairman of the Subcommittee on Local Health Units of the American Public Health Association.

Dr. Mattison succeeds Russell E. Teague, M.D., who has been the state's secretary of health for the past four years. Dr. Teague has returned to the Public Health Service from which he was on leave and is in the Bureau of State Services. During his tenure the Pennsylvania Health Department was reorganized in accordance with the state's new public health law, a merit system was put into operation in the department, nine state supervisory health districts were set up, and the work of decentralizing health services and returning them to local responsibility was begun. Two county health departments are in actual operation and active discussions toward the same end are going on in several other counties.

Cerebral Palsy Award to Dr. Kety

The United Cerebral Palsy 1954 fourth annual Max Weinstein Award for outstanding scientific achievement in the field of cerebral palsy was presented to Seymour S. Kety, M.D., associate director in charge of research, National Institutes of Neurological Diseases and Blindness and Mental Health, U. S. Public Health Service, at UCP's fifth annual convention in Washington, D. C., in November. Dr. Kety received the award, consisting of $1,000 and a plaque, for his pioneering work in measuring the blood flow through the human brain.

A Quarter of a Century

Three members of the headquarters staff of the American Nurses' Association were honored for 25 or more years of service at a dinner January 22 in the Hotel Plaza, New York City, given by the Board of Directors of the association. Honored were Ella Best, R.N., executive secretary; Emma Spinner, committee and field work secretary; and Mary E. Beatty, chief accountant. Gifts to the honor guests were presented by Agnes Ohlson, ANA president, at the dinner at which all staff members were guests. Miss Best joined the staff in 1930 as field secretary, becoming executive secretary in 1946. Miss Spinner came to the staff on a temporary basis to assist with preparation for the 1930 biennial convention, but the "temporary" employment has extended over 25

years. Mrs. Beatty joined the staff in 1924 as the first bookkeeper when ANA headquarters consisted of one small office with three wooden desks.

Royal Sanitary Institute Fellow

In the December, 1954, issue of the American Journal of Public Health, p. 1618, Honorary Fellows of the Royal Sanitary Institute living in the United States were listed. The Journal is now informed by the secretary of the institute, P. Arthur Wells, that in addition to those listed, Pearl McIver, R.N., chief, Office of Public Health Nursing, Division of Nursing, Public Health Service, Washington, D. C., had previously been elected an Honorary Fellow.

PERSONALS

C. L. AHLUWALIA, M.B., D.P.H.,† former assistant director, Bureau of Health Education, Training and Industrial Hygiene, is now assistant director of public health, epidemiology, and social insurance, Hyderabad-Dn., India.

WILLIAM A. ALLEN,† former health educator, Minnesota Department of Health, is now director of health education, Philadelphia (Pa.) Public Health Department.

RALPH C. BARNES,† senior scientist, former chief, Field Training Section, has been named chief, Training Branch, the Public Health Service's Communicable Disease Center, Atlanta, Ga.

NAN BERNSTEIN † is now nutrition consultant, Michigan Department of Health, Lansing.

AUDREY BILL, M.D.,† former public health physician, Division of Maternal and Child Health, Massachusetts State Department of Public Health, has become the first full-time medical health officer of Framingham, Mass.

EDWARD T. BLOMQUIST, M.D.,† medical officer-in-charge of the Arctic Health Research Center at Anchorage, Alaska, has been transferred to the Washington office of the U. S. Public Health Service as director of tuberculosis services. He has been succeeded by ARDELL COLYAR, M.D., M.P.H.,† former medical programs consultant, Boston regional office, Public Health Service.

RALPH H. BOATMAN, Ph.D.,* former chairman, Health Education Department, Southern Illinois University, has been appointed director, Health Education Department, The Tuberculosis Institute of Chicago and Cook County, Ill.

ARTHUR BUSHEL, D.D.S.,* former assistant director, Bureau of Dental Health, New York State Department of Health, has become head of the Bureau of Public Health Dentistry, New York City Department of Health.

JAMES D. CALDWELL, Sc.D.,† a Public Health Service reserve officer who has been chief of field party, Institute of Inter-American Affairs, in the Dominican Republic and Haiti, has been transferred to Ecuador, as chief of the health field party and director of the "Servicio Cooperative Inter-Americano de Salud Publica." His address is American Embassy, Quito.

JAMES E. CRANK, M.P.H.,† former assistant to the director of local health organizations, Georgia Department of Public Health, has been appointed assistant administrator of the 600-bed University of Alabama Hospital and Hillman Clinics, Birmingham.

MARIAN DAVIS,† supervising occupational therapist, California State Department of Health, has returned after spending six weeks in Japan under WHO auspices.

JACK B. EASON, M.D.,† former lecturer in preventive medicine and public health, University of Washington School of Medicine, is now regional health officer, south central region of the Alaska Department of Health, Anchorage.

WILLIAM F. ELKIN,† has been appointed to the newly created position of biostatistican, Fife-Hamill Memorial Health Center, Philadelphia, Pa.

MARIE FORD,† formerly health education consultant, has been named chief, Section of Public Health Education, Minnesota Department of Health, Minneapolis, succeeding WALLACE FULTON,† now public health associate, Bureau of Public Health, Equitable Life Assurance Society, New York City.

MORRIS GREENBERG, M.D.,* director, Bureau of Preventable Diseases, New York City Department of Health, on January 12 received a Civic Service Award from the New York City Citizens Budget Commission "for a career that has exemplified the best in municipal civil service."

THOMAS GROGAN,† former health educator, Anderson and Orangeburg County (S.C.) Health Departments is now in a similar capacity with the Anti-Tuberculosis League of Cincinnati, Ohio.

* Fellow.
† Member.

ERNEST M. GRUENBERG, M.D.,† executive director, New York State Mental Health Commission, has resigned to join the technical staff of the Milbank Memorial Fund in charge of the Fund's mental health activities.

ROSS E. GUTMAN, D.D.S., M.P.H.,† formerly in the New York City Department of Health, is now supervisor of dental health education, Bureau of Health Services, New York State Education Department, Albany.

GORDON H. HATCHER, M.D.,* formerly assistant professor, Department of Public Health Administration, School of Hygiene, University of Toronto, has been appointed director of the project in Prevention and Control of Indigent Disability, Washington County, Md., by the Community Research Associates in cooperation with the county health department, in which the project staff is housed. The health officer, W. Ross CAMERON, M.D.,* is associate director.

ICIE MACY HOOBLER, PH.D.,* director, Research Laboratory, Children's Fund of Michigan, Detroit, was included in the 1955 Honor Roll of Medicine of the publication Modern Medicine "for studies of nutrition in relation to human growth and reproduction."

F. W. JACKSON, M.D., D.P.H.,* former director of health insurance studies, has been appointed director of health services, Canadian Department of National Health and Welfare, Ottawa.

JOHN A. KAHL, M.D.,* acting director, Washington State Health Department, has been presented a citation by the President's Committee on Employment of the Physically Handicapped "in recognition of his outstanding efforts expended in promoting equal opportunity in employment for the physically handicapped."

LYNDON E. LEE, JR., M.D.,† former professor and coordinator of cancer teaching, University of Puerto Rico School of Medicine, is now director of surgery, Wayne County General Hospital, Eloise, Mich., retaining consultant status with the Puerto Rico School of Medicine and Health Department.

LAWRENCE J. LINCK,† executive director, National Society for Crippled Children and Adults (Chicago, Ill.), has resigned to enter private practice as a consultant in health and welfare.

V. G. MACKENZIE,† former senior sanitary engineer, Robert A. Taft Engineering Center, is now assistant chief, Research and Development Division of Sanitary Engineering Services, Public Health Service, Washington, D. C.

BERWYN F. MATTISON, M.D.,* commissioner of health, Erie County, N. Y., has been appointed secretary of health of the Pennsylvania Department of Health by Governor GEORGE M. LEADER, to succeed RUSSELL E. TEAGUE, M.D.†

GEORGE MOORE, M.D.,† recently in Nepal as a medical officer with the United States Foreign Operations Administration, is now medical director, San Juan Basin Health Department (Colo.) which includes five counties and has headquarters in Durango.

ADA M. PAUL,† formerly on the faculty of Columbia University's School of Public Health, is now consultant on health education, New York Heart Association.

EUGENE H. PAYNE, M.D.,† director of clinical investigation, Parke, Davis & Company, Detroit, Mich., has been promoted to assistant director for overseas.

WILLIAM J. PEEPLES, M.D.,* former assistant health officer, Muscogee-Harris Counties, Ga., is now deputy state health officer and Montgomery County health officer, Rockville, Md., succeeding GILCIN F. MEADORS, M.D.,* who is now epidemiologist, National Cancer Institute, Bethesda, Md.

FRANKLIN H. REEDER, JR., M.D.,* medical director for the Bucks-Montgomery District has been appointed medical director for Region 7 of the Pennsylvania Department of Health, including Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties.

LEONARD A. SCHEELE, M.D.,* Surgeon General of the Public Health Service, received one of the several 1954 bronze plaque awards given annually by United Cerebral Palsy for having given "public recognition to the problem of cerebral palsy." Dr. Scheele addressed both UCP's first annual meeting in 1949 and its recent 1954 meeting.

RAYMOND SELTSER, M.D.,† medical officer (public health), has been designated assistant chief of a new Medical Information and Intelligence Division in the Office of the Army Surgeon General.

F. H. SHILLITO, M.D.,* has been named medical director of the American Can Company, New York City, to direct and administer the firm's medical program.

ANNE E. SNIPES, M.S.P.H.,† formerly in the Bureau of Public Health Education, Pennsylvania Department of Health assigned to the Health and Welfare Council of Allegheny County, is the public health educator in the newly organized Bucks County (Pa.) Department of Health.

MARY E. SPENCER, PH.D.,* director, Malden

* Fellow.
† Member.

(Mass.) School Health Program, has been appointed chief consultant, Maine Department of Education, for revision of the college health program in the state.

ARTHUR C. STERN,* since 1942 chief industrial hygiene engineer, New York State Department of Labor, has been appointed research director in air pollution, Robert A. Taft Sanitary Engineering Center of the Public Health Service, Cincinnati, Ohio.

CHARLES STOWELL,† formerly sanitarian, Pittsburgh Department of Health, has been appointed regional sanitarian for the Pennsylvania State Health Department administrative area, embracing the counties of Allegheny, Fayette, Greene, Indiana, Somerset, Washington, and Westmoreland.

CLARK SUDDUTH † is now executive director, American Cancer Society, Oklahoma City, Okla.

RUTH SUMNER, PH.D.,* health education consultant, Training Branch of the Communicable Disease Center, Atlanta, Ga., has been transferred to Region III, Office of the Public Health Service, Washington, D. C.

HUNTER G. TAFT, JR.,† former sanitary engineer, Division of Food Control, Maryland State Department of Health, has returned to active duty in the U. S. Army, assigned to the Korean Civil Assistance Command as assistant public health engineer.

MAURICE S. TARSHIS, PH.D.,* former director, Tuberculosis Research Laboratory, Veterans Administration Medical Teaching Group Hospital, Memphis, Tenn., has been appointed assistant research bacteriologist, Department of Bacteriology, University of California, Berkeley.

RUSSELL E. TEAGUE, M.D.,† who has been on leave as Pennsylvania state secretary of health, has returned to active duty in the U. S. Public Health Service where he is in the Bureau of State Services and holds the commissioned office of medical director.

ARTHUR R. TURNER, M.D.,† formerly chief of the Medical Intelligence Branch, has been named technical director of a new Medical Information and Intelligence Division that has been created in the office of the Army Surgeon General.

EUGENE L. WALSH, M.D.,* former assistant director of medical services, International Harvester Company, Glenview, Ill., has been appointed director of medical services to succeed WILL F. LYON, M.D., retired.

JOHN M. WHITNEY, M.D.,* on loan from the Public Health Service, who was previously director of the casualty care division, has been named director of health services, Federal Civil Defense Administration, Battle Creek, Mich., succeeding ROBERT H. FLINN, M.D.,* reassigned to the Office of the Chief, Bureau of State Services, Washington, D. C.

ROBERT L. ZOBEL, M.D.,* medical director, USPHS, and formerly chief, Health Services Branch, Division of International Health, is now chief of the Health Division, U. S. Operations Mission, Thailand, c/o American Embassy, Bangkok, Thailand.

* Fellow.
† Member.

DEATHS

SELMA I. AKERFELT, R.N.,† director, Visiting Nurse Association, Fairfield, Conn. (Public Health Nursing Section).

MINNIE H. BLEASE,† district supervisory nurse, South Carolina State Board of Health with headquarters in Saluda (Public Health Nursing Section).

EVELYN C. BROWN,† director, Ocean County Health Department, Toms River, N. J. (Public Health Nursing Section).

JOSEPH FELSEN, M.D.,* director of laboratories and research, Bronx Hospital, New York, N. Y. (Laboratory Section).

SADIE GLADWIN,† chief, Division of Nursing, Montgomery County (Md.) Health Department on January 12 (Public Health Nursing Section).

FRANKLIN J. HALPIN, M.D., medical director, Bureau of Employees Compensation, F.S.A., Washington, D. C. (Occupational Health Section).

HAROLD J. KNAPP, M.D.,* Cleveland (Ohio) commissioner of health (Health Officers Section).

CLARENCE C. RUCHHOFT,* chief, Physician and Chemistry Section, Research Development Branch, Department of Health, Education, and Welfare, Environmental Health Center, PHS, Cincinnati, Ohio (Engineering Section).

MARION TALBOT, LL.D.* emeritus professor of household administration, University of Chicago, Chicago, Ill. (Food and Nutrition Section).

WILLIAM D. WEIS, M.D.,† Lake County health commissioner, Crown Point, Ind. (Health Officers Section).

CONFERENCES AND DATES

American Public Health Association. 83rd Annual Meeting. Kansas City, Mo., November 14–18.

State and Regional Public Health Meetings:

Arizona Public Health Association. Westward Ho Hotel, Phoenix, Ariz. April 19–22.

Georgia Public Health Association. De Soto Hotel, Savannah, Ga. April 25–27.
Idaho Public Health Association. Shore Lodge Hotel, McCall, Idaho. May 7–8.
Illinois Public Health Association with the Middle States Public Health Association. Morrison Hotel, Chicago, Ill. April 20–22.
Iowa Public Health Association. Savery Hotel, Des Moines, Iowa. April 7–8.
Kansas Public Health Association. Eldridge Hotel, University of Kansas Campus. Lawrence, Kans. March 30–April 1.
Louisiana Public Health Association. Jung Hotel, New Orleans. May 9–12.
Massachusetts Public Health Association. Science Museum and Massachusetts General Hospital, Boston, Mass. April 28.
Michigan Public Health Association. Grand Rapids, Mich. May 18–20.
Missouri Public Health Association. Sheraton Hotel, St. Louis, Mo. May 12–14.
New Mexico Public Health Association. Clovis Hotel, Clovis, N. M. April 25–27.
North Dakota Public Health Association. Gardner Hotel, Fargo, N. D. March 28–29.
South Carolina Public Health Association. Clemson House, Clemson, S. C. May 19–21.
Southern Branch, APHA. New Orleans, La. Jung Hotel. May 9–12.
United States-Mexico Border Public Health Association. Hotel del Bosque, Mexico City. May 6–9.
Utah Public Health Association. Hotel Ben Lomond, Ogden, Utah. April 25–26.
Western Branch, APHA. Westward Ho Hotel, Phoenix, Ariz. April 19–22.

Meetings of Other Organizations Coming in March, April, and May:

American Association of Medical Social Workers. San Francisco, Calif. May 31.
American Chemical Society. Cincinnati, Ohio. March 29–April 7.
American Institute of Nutrition. San Francisco, Calif. April 10–15.
American Psychiatric Association. Atlantic City, N. J. May 9–13.
Association of Schools of Public Health. Minneapolis, Minn. Mar. 30–31.
Child Study Association of America, Inc. Hotel Sheraton Astor, New York, N. Y. March 28.
Community Health Week. U. S. Junior Chamber of Commerce with the Cooperation of the National Health Council. March 21–27.
Conference on Biological Waste Treatment. Manhattan College, New York, N. Y. April 13–15.
Eastern States Health Education Conference. New York Academy of Medicine, New York, N. Y. April 21–22.
Health Congress of the Royal Sanitary Institute. Bournemouth, England. April 26–29.
Industrial Health Conference. Memorial Auditorium, Buffalo, N. Y. April 23–29.
Mental Health Week. May 1–7.
National Air Pollution Symposium. Pasadena, Calif. April 18–19.
National Conference on Interstate Milk Shipments. Hotel Peabody, Memphis, Tenn. March 29–30.
National Conference of Social Work. San Francisco, Calif. May 29–June 3.
National Health Council. Hotel Sheraton Astor, New York, N. Y. March 23–25.
National League for Nursing. Biennial Convention. St. Louis, Mo. May 2–6.
National Society for the Prevention of Blindness. Annual Sight Saving Conference. Hotel Statler, New York, N. Y. March 16–18.
National Tuberculosis Association. Milwaukee, Wis. May 23–27.
Planned Parenthood Federation of America. Waldorf-Astoria Hotel, New York, N. Y. May 5–6.
Society of American Bacteriologists. New York, N. Y. May 8–13.
World Health Organization. Mexico. May 10.

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